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NUMEROUS CASES

ILLUSTRATIVE OF THE EFFICACY

OF THE

HYDROCYANIC OR PRUSSIC ACID

IN AFFECTIONS OF THE STOMACH;

WITH

A REPORT UPON ITS POWERS

IN PECTORAL AND OTHER DISEASES

IN WHICH IT HAS BEEN ALREADY RECOMMENDED:

AND

SOME FACTS

RESPECTING

THE NECESSITY OF VARYING THE DOSES OF MEDICINES ACCORDING TO CIRCUMSTANCES,

AND

THE USE OF OPIUM IN DIABETES.

BY

JOHN ELLIOTSON, M.D. &c. &c.

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TO

William Rookes Crompton, Esq. A.M. Cantab.

OF

ESHOLT HALL, YORKSHIRE,

The following Pages

ARE INSCRIBED

BY

HIS EVER AFFECTIONATE FRIEND.

PREFACE.

When the Hydrocyanic Acid was lately brought into general notice, the Author determined on attempting to procure his patients the benefits for which it was extolled. Although he did not verify all that had been said in its favour, he found it an excellent medicine, and that in many cases to which it had not been before applied. He was thus led to employ it very extensively, and collected a number of facts which his friends thought worthy of publication. In acceding to their advice, he has taken the opportunity of stating a few particulars relating to other subjects, equally interesting in their opinion, but which alone would not have induced him to appear in print.

Some persons always smile on hearing of the smallest medical novelty, as though knowledge happened to be exactly at its height when they were students. If a mode of practice is mentioned that does not form a part of their own routine, they look as if they would say

> Populus Alcidæ gratissima, vitis Iaccho,
> Formosæ myrtus Veneri, sua laurea Phœbo;
> Phyllis amat corulos,—

or perhaps absolutely pretend to suspect an imposition.

Such are requested not to open the following pages. The author intends them for those who believe that medicine is an improvable art, and that, with a proper foundation of anatomy, physiology, and medical reading, a little zeal will enable the humblest abilities to contribute facts to the general stock of knowledge.

He has endeavoured to make as small a book as possible,—to state facts only, and those in the concisest manner, and, should any passages appear dogmatical, he assures his readers that it has arisen entirely from his desire to be brief, and that no man's disposition is more averse from arrogant assertion.

His statements of success are *positive* testimony. Those of failure, being merely *negative,* will not, he trusts, be relied upon, but lead others to a repetition of the attempts: and if, in the hands of others, success ensues where he failed, he will be more pleased than if his failures prove general, instead of partial, occurrences.

15, Grafton Street, Bond Street,
July 8, 1820.

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PART I.

OF THE HYDROCYANIC ACID.

THE Hydrocyanic Acid can scarcely be called a new medicine. The peculiar properties of the lauro-cerasus, bitter almonds, and substances of a similar flavour, are said to arise from it, and these were long ago employed as remedies. Dr. Brown Langrish tells us that the Lauro-cerasus was frequently employed in his neighbourhood to cure agues,* and Bergius successfully treated them with bitter almonds.† The former adds that nurses put a leaf of the lauro-cerasus in the pap when infants are troubled with flatulence. Linnæus states that the Dutch physicians employed it in pulmonary consumptions,‡ and Baylies § boasts of its virtues in hectic, and gives two instances of its thinning the blood, one in a melancholic patient troubled with many

* *Physical Experiments upon Brutes*, &c. p. 22. 1746.

† Cullen, *Treatise of the Materia Medica*. vol. ii. p. 287.

‡ *Amœn. Acad.* T. 4. p. 40. Quoted in Murray's *Apparatus Medicaminum*.

§ *Practical Essays on Medical Subjects*, p. 37. Quoted also by Murray, ibidem.

complaints (variis incommodis detento) which also it cured, and another in a man labouring under asthma and rheumatism. Cameron, we read, often removed hepatic obstructions by it;* and Baylies declares that its external application not only lessened but cured scirrhous tumours.†

The Hydrocyanic Acid, obtained separate by a chemical process, was first, I believe, employed about eight years since by Sign. Borda, in pulmonary and other inflammations.‡ In 1816, Dr. Majendie administered it in coughs and consumptions.§

Both the Lauro-cerasus and the Hydrocyanic Acid are now very much used in Italy.

* Murray, l. c.

† Murray, l. c.

‡ Brugnatelli, *Elementa di Chimica applicata alla Farmacia.* Article, "Acido Ossiprussico," 1814. Quoted by Dr. Granville.

§ *Journal of the Royal Institution.* 1817. and *Récherches Physiologiques et cliniques sur l'employ de l'acide Prussique, &c.* Paris. 1819.

SECT. I.

THE HYDROCYANIC ACID IN AFFECTIONS OF THE STOMACH.

After reading Dr. Granville's account of Dr. Majendie's cases and others of a similar kind which had occurred in his own practi[illegible] and that of his friends,* I began to try the powers of the medicine in the pectoral diseases for which it was recommended, and by a mere accident, in fact by a mistake, discovered, in March last year, its extraordinary efficacy in derangements of the stomach.

Before I transcribed the following cases from my note books for the press, I had read no other works upon the subject than those of Dr. Granville and Dr. Majendie; but, having now consulted every work within my reach, I have endeavoured to give to its proper owner each observation that I find already made by another, and, should any remain unassigned that are not original (and possibly there are many), I shall be grateful to have their owners pointed out, as I will yield to no man in my love of justice, and am very indifferent to the credit of discovering facts that required nothing more than the use of my external senses.

Two women, each named Ann Lee, were under my care at St. Thomas's Hospital at the same time, one for an affection of the chest, the other for violent spasms and flatulence of the stomach. Three minims of the

* *Further Observations on the internal use of the Hydrocyanic (Prussic) Acid*, &c. London. 1819.

Hydrocyanic Acid three times a day were prescribed for the former, and, from the identity of name, her prescription was given in mistake to the latter. The next time I saw the latter Ann Lee, she was perfectly well. She had, however, been subject to the complaint many years, and two months afterwards it returned. Here was a fair opportunity of ascertaining whether her recovery had been effected by the medicine given her in mistake. I prescribed it and she recovered as before.

The fact was decisive and important, and led to the establishment of the power of the Hydrocyanic Acid over derangements of the stomach.

The following Cases viewed together will, I trust, appear satisfactory. They are arranged in six sets for the sake of perspicuity, and for the purpose of lessening, as much as possible, the inevitable irksomeness of such narrations.

I. The first are intended to shew its power of relieving pain about the pit of the stomach.

Dec. 3, 1819.—A man, aged 52, has for four years been harassed with an intermitting pain at the pit of the stomach, especially after eating. The whole præcordia are tender on pressure. The bowels costive.

A. H. ♏ i. t. d.
And the dose to be gradually increased to ♏ iv.

Dec. 14.—Pain at the pit of the stomach very much diminished. Yet the bowels still costive; a slight pain remains in the sides. Pergat.*

* Where Pergat or any other prescription appears at the end of a case, the medicines were to be continued for a week, and the patient was not seen afterwards.

Dec. 17, 1819.—A woman, aged 47, has been variously afflicted for a month. There are pains in the extremities; a pain at the pit of the stomach and a pain in the head, irregularly alternating in violence; the pit of the stomach feels tight to her, and is tender on pressure. She has a cough, and the bowels are torpid.

A. H. ℥ i. t. d.

And the dose to be gradually increased to ℥ ij.
and taken with syrup of buckthorn.

21.—Much less pain of the stomach and head, and much less cough. The feeling of tightness at the præcordia diminished. The pains in her limbs are as before.

24.—Perfectly well. Pergat.

Aug. 5, 1819.—Sarah Johnson,* aged 50.—Very ill one month, but more or less for three years.

Pain at the pit of the stomach.

A. H. ℥ ij. t. d.

The dose to be gradually increased to ℥ vj.

14.—Better, but feels cold after taking the medicine.

A. H. ℥ v. t. d.

To be taken no longer in plain, but in peppermint, water.

21.—No pain whatever: feels weak and trembles.

Pergat.

28.—Trembling less. Bowels costive.

℥ ij. t. d. Ext. Col. C. p. r. n.

Aug. 7, 1819.—Ann Hallamby, aged 28. Ill a month, but frequently before.

* Those patients whose names are mentioned were under my care in St. Thomas's Hospital, and their cases stand in the public books. The others I saw in private.

Pain at the pit of the stomach and sides: flatulency, trembling when in bed.

A. H. ♏ ij. t. d.
The dose to be gradually increased to ♏ vj.

14.—Very much better. Nausea. Pergat.

July 29, 1819. John M'Nean, aged 59. Ill two months. Pain at the pit of the stomach.

A. H. ♏ iv. t. d.

Aug. 7.—No pain at all, but still complains of flatulency and weakness.

Pergat, Inf. Gent. C.

Sept. 2, 1819.—Thomas Bodkin, aged 45. Very ill for two months, and in the same way six years ago.

Violent flatulence and pain at the pit of the stomach; vomiting; costiveness.

A. H. ♏ ij. t. d.
The dose to be gradually increased to ♏ iv.
Ext. Col. C. ℥j. o. n.

11.—Better. Pergat.

18.—Better. Pergat.

23.—No pain nor vomiting; and has not been so well a whole year. Pergat.

Aug. 28, 1819.— —— Abbott. Ill some weeks. Most violent pain at the pit of the stomach, coming on very often in the course of the day; increased by food or exertion. The oxyde of Bismuth in doses of gr. v. t. d.; and the Ext. of Stramonium in doses of gr. ½ b. d. have given him no relief.

A. H. ♏ ij. t. d.
The dose to be gradually increased to ♏ iv.

Sept. 4.—Perfectly free from pain, and in all respects quite well. Pergat.

Oct. 4, 1819.—Mary Russel, aged 28. Ill three months. Pain at the pit of the stomach; chiefly at night.

A. H. ℳ i. t. d.

The dose to be increased to ℳ ij.

24.—Greatly better. Has rather a tremor.

Pergat.

30.—Still better. Pergat.

Sept. 9, 1819.—John Parry, aged 65. Ill three months. Constant pain at the pit of the stomach; increased by pressure. Little urine.

A. H. ℳ ij. t. d. for three days; then ℳ iv. t. d.

18.—Pain greatly relieved, but the urine still high coloured and scanty. Pergat.

Nov. 25, 1819.—Sarah Young, aged 55. Ill a fortnight. Pain at the pit of the stomach.

A. H. ℳ i. t. d. The dose to be increased in three days to ℳ ij.; and in three more to ℳ iij.

Dec. 4.—Perfectly well, except a little nausea.

Pergat.

Nov. 2, 1819.— —— Sumner. Pain at the pit of the stomach after eating.

A. H. ℳ i. t. d. The dose to be increased in three days to ℳ ij.; and in three more to ℳ iij.

Dec. 4.—Perfectly well. Pergat.

Dec. 30, 1819.—Ann Rye, aged 64. Ill three weeks; generally affected in this way twice a year. Constant pain at the pit of the stomach, occasionally excruciating. No appetite. Bowels regular.

A. H. ℥ i. t. d.

The dose to be gradually increased to ℥ iij.

Jan. 8.—No better.

A. H. ℥ iv. t. d. for three days, and then ℥ v. t. d.

15.—Greatly better. Has vomited but twice. Bowels torpid. Pergat.

22.—Perfectly well. Pergat.

March 23, 1820.—Ann Warham, aged 30. Ill three years. A constant pain at the pit of the stomach. Has ascarides.

A. H. ℥ i. t. d. for three days; then ℥ ij. t. d. for three days; and finally ℥ iij. t. d.

Apr. 1.—Pain entirely removed. Pergat.

Oct. 14, 1819.—A man, 34 years of age, of a delicate habit, has for four years felt a pain at the pit of the stomach every morning before leaving his bed. The tongue is rather clammy, and the mouth has an unpleasant taste; excepting which and a slight degree of feverishness in the morning, he has little to complain of besides the pain. His appetite is perhaps excessive. He has been treated, in vain, by various practitioners, regular and irregular.

A. H. ℥ i. t. d.

The dose to be gradually increased to ℥ ijss.

19.—The pain rather diminished. A slight degree

of nausea from the dose taken before breakfast. The other symptoms as before.

A. H. ♏ iijss. t. d.

Nov. 3.—Pain much less; in every respect better.

Pergat.

Dec. 4.—Very well. Appetite now good, but not excessive. Pergat.

March 30, 1820.—Mary Cobb, aged 50. Has laboured three weeks under constant pain at the pit of the stomach, unless when she is warm in bed. Bowels rather costive.

A. H. ♏ i. t. d. for three days; then ♏ ij. t. d. for three days; and finally ♏ iij. t. d.

Ext. Coloc. C. gr. v. o. n.

April 8. — Surprisingly better, to use her own words. Pergat.

March 17, 1820.—A young woman, aged 19, has laboured five weeks (and frequently indeed before) under a gnawing pain at the pit of the stomach, especially on motion. She is hoarse, has a dry, tight cough, and the bowels are costive.

A. H. ♏ ⅔ t. d.

The dose to be increased gradually to ♏ ijss.

24.—Very much better in the stomach. The cough also diminished. Pergat.

31.—Quite well. Pergat.

June 11, 1819.—A middle-aged woman had for many years been subject to violent gastrodynia, which I

twelve months ago removed by stramonium. It has, however, recurred and resisted the most powerful means.

A. H. ♏ ij. t. d.

16.—Much better than she has been for months. Bowels costive.

Ac. Pr. ♏ iij. t. d.

22.—Still better, but flatulency and choking. Often feels suddenly faint in the course of the day.

Pergat.

A. H. ♏ v. t. d.

29.—Much worse; choking and pain excessive. Pergat.; and, if no better shortly,

A. H. ♏ viij. t. d. And, in a few days, ♏ x. t. d.

I found that the first medicine she took was good; but that the second prescription was made up at a different shop, and, to all appearances, with sulphuric instead of prussic acid; the third was made up with prussic acid, at a place where I know it to be good for little. After learning these circumstances, I gave her directions for procuring the medicine good; and, having heard no more of the case, I imagine the woman got better, as she was never in the habit of staying away except when she felt no farther need of assistance.

II. The next are instances of equal relief in a variety of other symptoms connected with the pain of the stomach.

Feb. 4, 1820.—A woman, aged 30, has complained, for a month, of pain and tightness at the pit of the

stomach, chiefly after eating, flatulence,* irregularity of the bowels, giddiness, and pain of the head.

A. H. ♏ ⅔ t. d.

And the dose to be gradually increased to ♏ ij ss. and taken with syrup of buckthorn and peppermint water.

11.—Pain of both stomach and head diminished. Nausea from every thing she swallows: the giddiness worse, and especially after taking the medicine: the bowels regular.

The dose to be increased to ♏ iij.

15.—The giddiness also now diminished; but still nausea and a tightness after meals.

A. H. ♏ iv. t. d. for a few days; and then ♏ v. t. d.

25.—Perfectly well. Good appetite. Pergat.

April 6, 1820.—Mary Bulbrook. Complains of pain of the head and at the pit of the stomach.

A. H. ♏ i. t. d. for three days; then ♏ ij. t. d. for three days; and finally ♏ iij. t. d.

15.—Pain of both stomach and head infinitely better. Pergat.

May 24, 1819.—A woman, 48 years of age, subject some years to gastrodynia, has had it very violently

* Dr. Brown Langrish, in relating an experiment with the Lauro-cerasus upon a dog, states that a large quantity of wind was expelled from the stomach, and continues, "I have been informed by several nurses, that it has been a long and constant custom among them to boil a laurel leaf in the pap when their children were troubled with wind; and that long experience had taught them both the wholesomeness and usefulness of it. By this experiment I am assured that the Lauro-cerasus expels wind from the stomach." *Physical Experiments upon Brutes.* p. 77.

for a fortnight. Flatulency, loss of appetite, nervousness, and debility, are also present. The bowels in good order.

A. H. ℳ iij. t. d.

28.—Pain completely gone. Infinitely better in all her symptoms. Appetite good. Pergat.

Feb. 1, 1820.—A healthy-looking young man, aged 27, has been seized very frequently every day for a week with an acute pain at the pit of the stomach, lasting for ten or fifteen minutes, and followed by trembling and palpitation. The pain never attacks him in bed, nor is increased by food.

A. H. ℳ i. t. d. To be increased to ℳ ij.

4.—Much better in all respects. A little giddiness the first day. Pergat.

April 1, 1820.—Rebecca Mann, aged 26. Ill occasionally for six years; extremely so now for three weeks. Flatulence; a feeling as if a ball was sticking in the throat; pain at the pit of the stomach, swelling of it after eating; tremor, lowness of spirits, and vertigo.

A. H. ℳ i. t. d. for two days; then ℳ ij. t. d. for two days; and finally ℳ iij. t. d.

13.—Very much better. A slight pain to-day, from having no more medicine: thinks the lowness of spirits and trembling are worse every third day. The bowels costive.

Pergat. Ext. Col. C. p. r. n.

Feb. 15, 1820.—A woman, aged 32, has laboured six weeks under a pain at the pit of the stomach, that seizes her chiefly at night, accompanied by a rattling in her throat, a feeling of strangulation, and flatulency. There is pain on pressure. The bowels are in good order.

A. H. ♏ i. t. d.

The dose to be gradually increased to ♏ iv.

22.—Is seized only every other night, and is otherwise better. Pergat.

March 7.—Much better: urine very copious: no paroxysm of pain, choking, or rattling: was perfectly well till yesterday, when a difficulty of breathing, a cough, and spitting of blood began.

The symptoms are inflammatory, and indicate bloodletting, &c.

March 24, 1820.—A man, aged 38, has laboured spring and autumn for fourteen years under a pain at the pit of the stomach, difficulty of breathing, cough, tremor, lowness of spirits, weakness and sleepiness, and, after eating, tightness of the præcordia, flatulence, and indigestion. He has now complained about two months.

A. H. ♏ $\frac{2}{3}$ t. d.

The dose to be gradually increased to ♏ ijss.

31.—Pain entirely gone: flatulence lessened: spirits very much improved. The cough is no better.

Pergat.

May 1819.—A short, plethoric man, aged 60, long subject to cough and shortness of breath, has for two months been seized, especially after eating, with a

tightness at the pit of the stomach, a violent sense of weakness, and a dejection of spirits. He is very flatulent, makes too little water, but is in a regular state of bowels.

A. H. ♏ iv. Vini Colchici ♏ xij. ter die.

21.—Perfectly well. Felt better on the third day.

Pergat.

May 1820.—Has had violent pain of the præcordia, with depression of spirits, &c. as before, which again yielded speedily to the prussic acid.

April 14, 1820.—A man, aged 26 years, and always disposed to the disease, has been afflicted for six months with a tightness and pain at the pit of the stomach, particularly after meals, the continual discharge of a fluid into the mouth, flatulence, nausea, and sometimes with vomiting. The bowels are regular, he sweats a great deal, and is alternately in high and low spirits.

A. H. ♏ $\frac{2}{3}$ t. d.

The dose to be gradually increased to ♏ ij ss.

25.—Tightness gone. Pain greatly diminished. Has but once found his mouth filled with fluid, and been sick. The flatulence, nausea, lowness of spirits, and sweating, less. The bowels regular as before.

Pergat.

May 2.—Having yesterday taken unusual exercise, his mouth has been ever since full of fluid: thinks he must have spit out a pint. He has been taking rather less of his medicine than I wished.

A. H. ♏ iij. t. d.

9.—No fluid has risen into his mouth all the week. Perfectly free from all complaint. Pergat.

26.—Still quite well.

To continue his medicines another week.

May 18, 1820.—Wm. Inge, aged 37. Ill six months. Has pain at the pit of the stomach, frequently vomits bile, and constantly trembles from head to foot in an extreme degree; sometimes his arms and legs feel benumbed; his spirits are greatly depressed, and violently agitated by the most trifling circumstances.

A. H. ℥ i. t. d. for three days; then ℥ ij. t. d. for three days; and finally ℥ iij. t. d.

27.—No better.

℥ iv. t. d.

June 3.—Scarcely trembles at all; spirits good; no pain nor vomiting. Pergat.

III. When a sudden pain attacks the pit of the stomach, running through to the back and drawing the body forwards, and a quantity of fluid rises into the mouth, the symptoms are usually denominated Pyrosis, Cardialgia sputatoria, or Water-brash. When they occur distinctly the Nosologist may give them a distinct appellation, but I confess they appear to me one of many varieties only of common derangement of the stomach. I frequently have patients complaining of indigestion, fulness of the præcordia, &c. without this pain, subject, nevertheless, to the discharge of a fluid into the mouth, either occurring copiously on a sudden at intervals, or

pretty constantly through the day in a lower degree; and the fluid varies from limpid tenuity to viscidity, and from complete insipidity to saltishness or intense sourness, such as almost to corrode the throat. Sometimes this discharge is combined with pretty *constant* pain at the pit of the stomach. The pain, again, as we have seen and is well known, is often unattended by this symptom, and yet may come on suddenly and violently at intervals, and, like what is called Pyrosis, chiefly when the stomach is empty.

The same patient will sometimes have merely pain in the stomach; sometimes merely indigestion and a discharge of fluid; and sometimes the regular combination of pain and discharge called Pyrosis.

I shall now offer some Cases of pain at the pit of the stomach combined with a discharge of fluid into the mouth,—some Cases of Water-brash.

July 27, 1819.—A woman, 36 years of age, frequently afflicted before in the same way, has for a fortnight been suddenly seized with pains in the situation of the heart: a clear fluid rises copiously in the throat: she has a gnawing sensation in the epigastrium, palpitation, vertigo, flatulency, anorexia, dejection of mind, and trembling. The bowels are relieved two or three times daily.

A. H. ℥ iv. t. d.

Aug. 3.—Pain less frequent; the tremor, gnawing sensation, palpitation, flatulency, and fluid which rises in the throat, are less. The want of appetite and spirits

continues. The fæces are dark, and for the first time contain innumerable ascarides.

The dose was but two minims the first four days, as more excited vomiting: for two days it has been four minims. Tongue yellow. Pergat.

June 18, 1819.—A married woman, aged 26, who has not menstruated during the three last months, has laboured two months under violent occasional pain at the pit of the stomach, and faintness, nearly amounting to syncope, a discharge of a watery fluid into the mouth, a high degree of flatulence, and a general tremor. The bowels are rather costive.

A. H. ♏ iij ss. Syr. Rhamni ♏ xv. ter die.

25.—Pain and faintness infinitely better. Flatulence and tremor rather better. The vomiting continues, but has become bilious. The bowels now relieved once a day.

A. H. ♏ vj. Syr. Rh. ♏ xv. ter die.

July 16.—Has continued greatly to improve, but, once omitting her medicines for a few days, the flatulence returned. Pergat.

April 7, 1820.—A woman, aged 29, has been afflicted at intervals (at present for a month) during six years, with a pain at the pit of the stomach returning every two or three days: it is sometimes dreadfully violent after eating: a sour fluid rises into the mouth: she feels nausea, has flatulence, and the bowels are costive. Trembles. Her sleep is disturbed by dreams.

A. H. ♏ $\frac{2}{3}$. t. d. With Syr. Rhamni.
The dose to be gradually increased to ♏ ij.

18.—Much better. No pain, nor sour fluid. The bowels very open. Pergat.

May 2.—Quite well in the stomach. Much stronger: dreams and trembles much less. The appetite very great. Pergat.

19.—Still quite well. Pergat.

Aug. 12, 1819. —Laing, aged 44. Ill three weeks. Pain at the pit of the stomach, with a frequent discharge of fluid into the mouth.

A. H. ℥ ij. t. d.
The dose to be gradually increased to ℥ iv.

28.—No pain at all: but the mouth still frequently filled with fluid.

A. H. ℥ vj. t. d.

Sept. 4.—Perfectly well, except in regard to the discharge of fluid.

A. H. ℥ vij. t. d.

March 16, 1820.—Mary Izzard, aged 35. Ill four months. Has pain of the stomach after eating, and frequently at other times a discharge of clear fluid into the mouth with pain of the stomach; has also pain of the loins and limbs; is costive.

A. H. ℥ i. t. d. for three days; then ℥ ij. t. d. for three days; and finally ℥ iij. t. d.

25.—Pain of stomach much better, but that of the loins and limbs undiminished. Nausea, costiveness.

Pergat.
Ext. Col. C. p. r. n.

April 1.—Still better; but, the acid having been improperly taken in simple cold water, she finds the pain

increased for some time after each dose from the coldness.

Pergat,—taking the acid in peppermint-water as directed.

8.—Better. Pergat.

13.—Little complaint, except the pain of the loins and limbs.

The following case was one of mere gastrodynia when treated by me, but previously of pyrosis.

Sept. 24, 1815.—A woman, 52 years of age, has been labouring for two months under violent pain and coldness of the stomach. She has frequently had these symptoms before; till the present attack they were alleviated by a discharge of watery fluid from the throat. The bowels are in good order.

A. H. ℥ i. t. d. for two days; then ℥ ij. t. d. for two days; and finally ℥ iij. t. d.
Tr. Aloës C. ℈j. t. d.

Oct. 15.—Perfectly well. The bowels rather costive.

IV. When the excessive irritability of the stomach produces vomiting,* the Hydrocyanic Acid is equally useful.

* Most affections of the stomach (and indeed of the intestines) are at present vulgarly termed bilious, especially if of this description. Even when a man overloads his stomach, he calls himself bilious.

"The liver," says Lord Byron, "is the lazaret of bile,
But very seldom executes its function, &c.
So that all mischiefs spring up from this entrail,
Like earthquakes from the hidden fire called central." Don Juan.

The recent general acknowledgment of the necessity of carefully attending to

Feb. 4, 1820.—A woman between 50 and 60 has laboured more or less for many years under head-ache, trembling, vomiting, and a tightness of the præcordia.

A. H. ℥ i. t. d. gradually increasing the dose to ℥ ijss.

11. Vomiting, head-ache, and tightness, gone. Pergat.

the state of the liver in a variety of cases, has probably occasioned this extreme. And as vomiting, even in the most healthy person, on getting into a ship for instance, usually squeezes bile into the stomach, which of course discharges it, the propriety of laying general blame upon the liver (whose broad back is fortunately fitted to the burthen) when only the bowels are torpid or the stomach irritable, is thought absolutely proved. I hope not to be misunderstood. My objection is simply to viewing the liver as the only source of abdominal disease, and to not taking an enlarged view of the state of at least the liver, stomach, and intestines. No one can estimate more highly than myself the obligations of the profession to the late Dr. Curry. As to his considering almost all diseases as connected with derangement of the *liver*, Dr. Andree above thirty years ago attributed all cases of asthma to it (*Considerations on Bilious Diseases, &c.*), and Mr. Paisly all chronic diseases (*ib.*) Neither was the correct portion of Dr. Curry's views respecting the liver and mercury much other, I apprehend, than what had prevailed among many practitioners of warm climates. Yet he certainly had the great merit of boldly teaching the importance both of attending to the liver, particularly in fever, and of exhibiting mercury frequently and freely, in this country, when our practice was lamentably defective in these two respects. The mere fact of the abdominal veins terminating in the liver is sufficient to demonstrate the advantage of unloading this organ when congestion occurs in the abdomen. A pupil of Dr. Curry's must recognise the ground-work of Dr. Armstrong's practice as the very instruction he received at Guy's Hospital. Dr. Armstrong employs general, for Dr. Curry's local, bleeding in fever, and large for small doses of mercury, much more frequently than I have found admissible in London. Yet Dr. Armstrong has most powerfully improved and generalised in regard to these subjects. He has shewn among other things that mercury must be often used with extreme boldness in this country, and that it has an extraordinary general power of checking acute inflammation. Of this I am so certain, that were I to lose a patient from an acute inflammation, without having, in addition to bleeding, &c. made a vigorous attempt to affect the mouth by mercury, I should consider myself accessory to his death. To ascribe the benefit of mercury solely to its operation on the liver, is an extremely narrow view of its agency.

March 2, 1820.—Sarah Titly. Complains of sour vomiting, heart-burn, pain at the pit of the stomach, palpitation of the heart, and difficulty of breathing.

A. H. ℳ i. t. d. for three days; then ℳ ij. t. d. for three days; and finally ℳ iij. t. d.
To take magnesia occasionally.

11.—No vomiting. Pain diminished. Pergat.

18.—Neither vomiting, pain, nor heart-burn; but the palpitation continues. Pergat.

25.—Neither vomiting, pain, nor heart-burn, but the palpitation and difficulty of breathing unchanged. These pectoral symptoms require the usual remedies.

Nov. 25, 1819.—Nathaniel Turner, aged 60. Ill three weeks. Pain at the pit of the stomach; vomiting of his food; costiveness.

A. H. ℳ i. t. d.
The dose to be increased in three days to ℳ ij.
and in three more to ℳ iij.
Ext. Col. C. ℈j. quaque n.

Dec. 4.—Perfectly well, from the second day he took his medicine.

Dec. 20, 1819.—Catharine Wilson. Vomits every morning.

A. H. ℳ i. t. d.
The dose to be gradually increased to ℳ iij.

8.—Better. Pergat.

22.—No vomiting for the last fifteen days.

Sept. 2, 1819.—Elizabeth Dennis, aged 47. Ill four years. Pain at the pit of the stomach; nausea and vomiting.

A. H. ℳ ij. t. d.
The dose to be gradually increased to ℳ iv.

18.—Much better. Still feels nausea. Pergat.

25.—Still better. Pergat.

Jan. 27, 1820.—Peter Agan, aged 50. Pain and burning* of stomach, with acid eructations.

A. H. ℥ i. t. d.

The dose to be gradually increased to ℥ iv.

Magnesia to be taken twice a day.

12.—Rather better: but the heat and vomiting as before.

A. H. ℥ v. t. d. Magnesia t. d.

19.—Vomiting less frequent: (but twice a day.)

Pergat.

26.—No vomiting. Heat and pain less. Magnesia to be omitted. Pergat.

Feb. 4.—Symptoms returned: pain increased on pressure.

Only leeches and a blister to the pit of the stomach.

11.—Rather better.

A. H. to be used again, as before; but without magnesia.

18.—Very greatly better: has vomited but once.

Pergat.

25.—Quite well. Pergat.

April 1.—Quite well.

April 6, 1819.—Peggy Murphy, aged 34. Ill six months. Has pain at the pit of the stomach; and flatulence; and vomits a great deal of bile.

A. H. ℥ i. t. d. for three days; then ℥ ij. t. d. for three days; and finally ℥ iij. t. d.

* In Dr. Granville's work, Mr. A. T. Thomson relates a case of heat of the tongue cured by the prussic acid.

15.—Pain and vomiting much lessened; but sometimes vomits after taking the medicine. Pergat.

22.—Considerably better. Pergat.

March 30, 1820.—Augustus M'Donald, aged 40. Long in a warm climate. Has been afflicted for a year with a frequent pain under the left false ribs, flatulence, indigestion, and vomiting of nearly all the food he takes.

A. H. ℥ i. t. d. for three days; then ℥ ij. t. d for three days; and finally ℥ iij. t. d.

April 8.—Vomiting entirely gone. The pain very nearly gone too. Is never troubled with indigestion.

Pergat.

April 11, 1820.—A woman, aged 28, has been affected a week with vomiting, tremor, weakness, and a constant sensation of gnawing at the pit of the stomach, amounting sometimes to violent pain.

A. H. ℥ ⅔. t. d.

The dose to be gradually increased to ℥ ijss.

14.—No vomiting since the first dose of the medicine. No pain nor sensation of gnawing. Tremor much better. Strength improved. Pergat.

V. Lest any one should account for the relief by noticing that the bowels were frequently brought into better order by suitable medicines, I shall relate a few cases that will show the groundlessness of this suspicion.

Dec. 31, 1819.—A woman, aged 42, has been occasionally distressed for two years with pain at the pit of the stomach, especially after eating. She has now had it constantly for three weeks. The bowels are not open more than once a week without aloes.

A. H. ℥ i. t. d. The dose to be gradually increased to ℥ iv. and taken with syrup of buckthorn.

Jan. 7.—Better. Pergat.

11.—Nearly well. The medicine does not appear so strong as it ought to be, and she is directed to procure it at a shop supplied by Mr. Garden.

March 11.—Has been perfectly well for a length of time, though her bowels still as much in need of aloes as before. The medicine now used is considerably more powerful.

Oct. 16, 1819.—Ann Brebber, aged 50. After vomiting for six days was seized with a pain at the pit of the stomach, which has now continued ten days. The bowels are very costive.

A. H. ℥ i. t. d. for three days, and then ℥ ij. t. d.
Ext. Col. C. gr. x. p. r. n.

24.—No better. Yet the bowels regular.

A. H. ℥ iij. t. d.

30.—Infinitely better.

Dec. 30, 1819.—Charles Jacobs, aged 50. Ill one month with a pain at the pit of the stomach, which comes and goes.

A. H. ℥ i. t. d. for three days; then ℥ ij. t. d. for three days; and finally ℥ iij. t. d.

Jan. 8.—Quite well. Pergat.

15.—Quite well. Once the pain returned on neglecting his medicine. Pergat.

22. Quite well. Yet the bowels costive.

Nov. 19, 1819.—A Man, 47 years of age, has for four months been affected with pain at the pit of the stomach after eating, giddiness, nausea, and sluggishness of the bowels.

Pil. Hyd. gr. v. Aloës gr. v. quaque n.

Dec. 7. No better; yet the bowels now regular.

A. H. ♏ i. t. d.

And gradually to increase the dose to ♏ iv.

14.—Almost well; yet the bowels costive. Pergat.

Jan. 1.—Perfectly well.

March 31, 1820.—A Woman, aged 44, has laboured five months under a constant pain, with a sensation of heat, at the pit of the stomach. It occasionally increases and is attended by nausea and vomiting. She has little appetite, is weak, and in low spirits. The head always aches, and the sight is sometimes dim. The catamenia are regular, but sparing. There is some degree of anasarca.

A. H. ♏ $\frac{2}{3}$. t. d.

The dose to be gradually increased to ♏ ij ss.

Apr. 7.—The nausea is lessened, and there has been no vomiting. The head is better. The sensation of heat at the stomach is converted into one of coldness. The pain of the stomach occurs only when she moves, but is then equally severe. She has a great feeling of

weight in the præcordia after eating. Complains of severe pain of the ankles and right arm.

A. H. ♏ iv. t. d.

14.—Infinitely better. Says she feels quite a different person The bowels are extremely costive. She has no pain, nausea, nor vomiting. The appetite is good, and she is much stronger. Pergat.

VI. Disorders of the stomach occasionally resemble some of the heart in the occurrence of sudden pain, especially on motion, about the præcordia, and in the circumstance of the left shoulder and arm being affected.* I must trouble my readers with two or three cases of this kind, in which the Hydrocyanic Acid was equally useful.

Oct. 11, 1819.—A Woman, aged 32, has had during the two last years a constant pain below the left breast, occasionally aggravated and extending into the breast, and as far as the pit of the stomach. The left arm and hand are weak and often benumbed. She is sometimes seized with sudden difficulty of breathing; and complains likewise of palpitation and flatulence.

A. H. ♏ i. t. d.

And the dose to be increased gradually to ♏ iij ss.

Nov. 2.—Much less pain, numbness, and palpitation. Pergat.

9.—Still better. Urine very copious. Pergat.

* In Dr. Bateman's *Reports on the Diseases of London.* p. 88. 1819, a case is related where both arms suffered.

July 30, 1819.—A Woman, 29 years of age, has laboured three months under a pain at or below the epigastrium, accompanied by a sensation of heat and often running down the left arm, flatulency, loss of appetite, depression of mind, pain and heaviness of the head, sleepiness, and occasionally a low degree of delirium. The hands are often hot and marked by large red spots. The breath frequently difficult.

A. H. ℳ iv. t. d.; and in three days
A. H. ℳ vj. t. d.

Aug. 3.—Flatulency relieved on the second dose; the pain of the epigastrium after the sixth; headach and sleepiness also much lessened; the anorexia and heat as before. The bowels have not been open for three days. The medicine causes a little nausea and weakness in half an hour after it is taken. Pergat.

6.—Very much better. Complains of nothing but the heat and costiveness. Pergat.

13.—The stomach perfectly well; but the head still giddy and sleepy.

Pergat.—Pil. Hyd. gr. xv. quaque nocte.

17.—Stomach still well. Head began to mend yesterday. Bowels regular.

In the first of the two next cases the pain extended into both arm-pits though only into the left arm; in the second, it affected the right shoulder.

Oct. 21, 1819.—James Parker, aged 30.—Ill a year and a half. Pain at the breast bone, running through to the back, branching into the arm-pits, and extending along the left arm. Worse in the evening. Finds relief by pressure.

A. H. ℥ i. t. d.
The dose to be increased in two days to ℥ ij.
and in three days more to ℥ iij.

Nov. 6.—Perfectly well.

July 28, 1819.—A delicate little man, aged 30, has for a week been tormented, as indeed frequently before from much walking or mental uneasiness, with a sudden pain at the right side of the pit of the stomach, bending him double, and running up to the right shoulder. Palpitation, dejection, a sensation of sinking, and debility, are likewise present. Bowels open twice a day. Urine often too copious.

A. H. ℥ iv. t. d.

Aug. 28.—Meeting him by accident, I find him in perfect health. He says the pain left him the second day he began his medicine, his spirits quickly returned, and the other symptoms took, what three weeks health make him hope a final, leave.

The symptoms termed Angina Pectoris, though sometimes most distinctly marked, appear necessarily connected with no determinate structural disease of the heart, and are frequently blended in various degrees with a variety of others. The cases which were last related demonstrate the occasional similarity of symptoms produced by derangement of even the stomach only, and simple gastrodynia is in many cases aggravated or excited by motion. After excessive fatigue and fasting I have four or five times been awaked in the night by a gnawing pain at the stomach and an aching at the margin of the lower jaw on each side,

exactly where the angular arteries run: a patient, whose case I will presently relate, labouring under decided angina pectoris and organic disease of the heart, complained greatly of this very aching, and invariably found it much augmented or even induced on going into a cold air. I may add that he, as well as every patient whom I have seen labouring under disease of the heart or spasmodic difficulty of breathing, was much tormented with flatulence, and other affections of the stomach. I will not affirm that the sudden and violent pain occasioned by various diseases of the heart has the same seat as that frequently occasioned by derangement of the stomach, but the symptoms and successive treatment of the cases last related, led me to attempt relieving the sudden pain often attending disease of the heart by the Hydrocyanic Acid.

The sudden death of the following patient renders it probable that the heart was diseased.

June 15, 1819.—A Woman, 47 years of age, has for six months been tormented with a sudden excruciating pain in the front of the chest, extending along both arms, but especially along the left and even reaching down the leg of this side. She has also a sense of choking, as if a solid substance filled the throat; a constant shortness of breath, flatulence, and extreme nervousness and debility. Ordinary doses of opium, and the Tr. Ferri Ammon. taken three times a day for a week, have proved useless.

A. H. ♏ iv. ter die.

22.—The pain much less, though equally frequent. The flatulence undiminished. Pergat.

29. The pain now next to nothing; flatulence gone; the spirits, appetite, and strength excellent. Pergat.

I subsequently learnt that this woman died suddenly under circumstances which strikingly displayed the power of the remedy. The medical man who had invariably made up the prescription with prussic acid procured from a good manufacturer of it, having no more, sent for some from a neighbour who bought it at a place where it is extremely bad. This had no effect on the disease, the woman was disheartened, went to a practitioner who prescribed salts and magnesia, got no better, and, as the inertness of the prussic acid which she last took was unknown to the gentleman who furnished her medicines, she was allowed to persist in the resolution of taking no more, and one morning suddenly fell dead into her husband's arms.

March 17, 1820.—I was consulted by a person, about 63 years of age, for a pain at the sternum, left shoulder blade, and back of the neck, that had existed three or four years, had become gradually more frequent and intense, was now excited by walking a very short distance, often attacked him in the night, and was attended by violent palpitation. There was a smarting and soreness of the front of the chest, pain almost constantly at the left shoulder blade, frequently in the shoulder itself, and a tightness and fulness of the præcordia, especially after eating, together with flatulence. He had a pain in the lower jaw on each side, as mentioned in the preceding page; and the left arm and fingers felt often stiff and benumbed. The pulse irregularly in-

termitted. As these symptoms had gradually grown more marked, there could be no doubt of the heart being diseased, and they strictly deserved the appellation of Angina Pectoris. In every other respect he was in the finest health.* I prescribed the Hydrocyanic Acid only; and, from passing most agonising nights, generally having had an attack (often of some hours) every night, he regularly enjoyed undisturbed repose for a length of time, and became very free from pain in the day, and able to walk a mile or two, though not with ease. Excessive walking, however, or agitation of mind, generally excited on parting with some one or other of his children who were of course continually visiting him, would bring on a paroxysm, even when he felt himself so much better as to hope his cure was near being completed. The disease of the heart necessarily remained uncontrolled, and, after parting with one of his children, he was seized in the middle of the night with excruciating pain at the breast-bone and excessive difficulty of breathing. His countenance was ghastly, and his pulse very rapid, and, for the first time I had observed it, perfectly regular. His groans were

* He had been accustomed to walk thirty or forty miles a day in the shooting season, and no servant who was expected to attend him when shooting could live with him any time.

The far greater number of cases of structural disease of the heart that have been under my care have originated from excessive exercise. I once had three together, all from this cause:—one of them, I recollect, from the man having run three times round St. James's Park without stopping. Those young persons who glory in their feats of exercise, like others who boast of their vicious exploits, little imagine what medical men daily witness, and forget that, though the victims of excess, as well as other sufferers, cease to be seen among the active and healthy who carry on the world, retirement and obscurity are filled with woe and the grave silently supplied.

dreadful, but a strong wheezing at the throat and his desire for all the doors and windows to be opened, shewed the attack was partly asthmatic. On bleeding him in both arms, I with difficulty procured half a pint of blood, and I gave him three hundred drops of laudanum in the course of three hours before the attack ceased. His breath afterwards continued short, particularly at intervals, and the wheezing was frequently audible; great pain also was frequently felt in the chest; the pulse continued very quick, but recovered its intermittence: I judged it advisable to recur to the acid, and was happy enough to completely remove his pain. The breath, however, remained almost constantly difficult, he got no sleep, and could not lie on his back more than half an hour or an hour at a time. Being tired of taking his medicine, and feeling no pain, he begged to leave it off, and I willingly exchanged it for diuretics, as water had evidently formed in the chest. Three days after leaving it off, while sitting at a table with several of his family, talking, his head suddenly fell forward, and in a moment, without a sigh, he was a corpse. I had prepared his family for such an event. Inspection of the body was not permitted.

Though, therefore, the Hydrocyanic Acid possesses not the smallest pretensions to cure or retard structural disease of the heart, it certainly may be used with advantage to mitigate sufferings of the description of angina pectoris.*

* An Italian physician, named Zecchinello, has drawn up an analysis of all our present facts in regard to this disease, but I have not yet met with his work. Dr. Blackall also has given a concise view of them at the end of his work on Dropsy, and finds ossification at or near the origin of the aorta in a large majority of cases.

The preceding cases have been taken rather carelessly from a large number of others, and are sufficient to prove the power of the Hydrocyanic Acid over affections of the stomach. Although I am convinced of its peculiar powers,—that it is far superior to every other remedy in tranquillising the stomach, and is exactly what has been always a desideratum for affections of this organ, I am not so absurd as to wish it believed a specific in such dis-

Dr. Brera has related three dissections after this disease, in all of which the liver was found much enlarged and compressing the heart; in the first, the coronary veins were varicose, and the right auricle and ventricle dilated; in the second, the heart was very large and fat, the coronary veins dilated, the right auricle remarkably dilated and attenuated, and the right ventricle thinner than usual, with small columnæ carneæ and several little polypi; in the third, the heart was perfectly sound but extremely small, and the aorta a little dilated near its arch. He also relates three cases where symptoms of angina pectoris accompanied enlargement of the liver and yielded on reducing the size of this organ. Saggio Patologico-clinico sulla Stenocardia, in the *Memorie Medico-cliniche per servire d'interpretazione ai prospetti clinici del* Cavaliere Valeriano Luigi Brera. M. D. Padova. 1816.

A German physician appears to have pointed out the occasional origin of Angina Pectoris from circumstances foreign to the heart, as enlargement of the liver or spleen. (Dr. John, Uber die Syncope Anginosa Parrys, &c. in Hufeland's *Journal der Practischen Heilkunde* xxiii. Band. 3 St. p. 37.) If symptoms similar to, if not identical with, Angina Pectoris, will arise from affections of the stomach, liver, &c. as well as from organic disease of the heart itself, the fact is highly important.

I am ignorant whether the Hydrocyanic Acid has ever been used in this complaint by others. But Professor Brera, when mentioning a variety of remedies that have been advised, adds that it may be useful, not in diminishing the paroxysms of pain as I have observed, but in lowering the pulse if much vascular irritability is united with the ordinary symptoms of the disease. "Il tartrato di potassa antimoniato in alta dose, le digitali epiglottide e purpurea, l'acqua coobata di lauro-ceraso, l'acido prussico potranno eziando in qualche incontro di stenocardia renderci eccellenti servigi, massime allorquando un grado rimarchevole di esaltata irritabilità del cuore e del sistema vascolare fosse per trovarsi unito alla già indicata condizione patologica di questa malattia."

orders, and in fact I could relate many instances of its failure. As the inefficacy of a remedy is taken for granted beforehand, and a writer's difficulty is to prove its efficacy, I shall not detail the unsuccessful cases of its employment in affections either of the stomach or of other parts, but concisely state the general results.

Success cannot be expected unless the medicine is good and the dose of suitable magnitude. I have seen the acid from many places muddy, depositing a brown sediment when at rest, and so weak that nearly a drachm might be taken without much inconvenience. That which I have employed, from which only the benefits derived in my cases can be expected, and to which only all my statements in regard to doses, &c. apply, is as limpid as spirit of wine, does not act upon a cork, makes a strong impression on the nose, and causes a catching of the breath if sniffed up suddenly; and it has always been manufactured according to Vauquelin's method by Mr. Garden of Oxford Street. My statements relate to this, and not to any thing that may be put into a bottle and called Prussic Acid. I have had many cases in which it did no good because from some misunderstanding on the patient's part the dose prescribed was not taken, and in which, on increasing the dose, the disease presently subsided. When no effect of any sort is produced, the dose must be too weak or the medicine bad, because it is not, like many boasted remedies, mere milk and water, but an agent of universal power among animal bodies.

I have found it useless when exhibited to subdue inflammation. In my hands it has always proved unable both to check inflammation of any organ and to lessen the quickness and violence of the pulse when there was simply excessive action of the heart, or throbbing of

the head, &c. Hence if the derangement of the stomach is accompanied by an inflammation of this part, leeches, blisters, &c. must be employed. This is a case of stomach disorder in which the common remedies,—camphor, æther, and aromatic waters, are not only inefficient, but detrimental. Sometimes, however, the epigastrium feels as if bruised (the ordinary effect of spasm) and is tender on pressure, and yet these symptoms disappear under the use of the acid; probably because they proceed from an inflammation not regularly established, but only kept up by the repeated spasm, and, when the recurrence of this is prevented, necessarily cease. Where leeches, blisters, &c. are requisite, it may be given at the same time or immediately afterwards, as its ordinary soothing effects upon the stomach will be no longer prevented by a morbid state of vessels.

Neither do I find it useful as a general narcotic or anodyne. I have not above once or twice known it induce sleep,* nor ever seen it relieve pain directly excepting that about the epigastrium. Even upon enterodynia, which seems to differ from gastrodynia in only being situated lower down the alimentary canal, it has no effect.†

* Dr. Cullen remarked, that the operation of the lauro-cerasus was "different from that of other narcotic powers, which in their first operation commonly induce sleep, and which," says he, "I do not find to have been ever observed as the effect of the lauro-cerasus."

† For this complaint we have an excellent medicine in Stramonium. The anodyne properties of stramonium are very extraordinary, and completely escaped Storck, nor would they have been known at present but for Dr. Marcet accidentally hearing from a pupil at Guy's Hospital, that his father, a country practitioner, found it serviceable in painful affections, and verifying the information by some trials which are published in the *Medico-Chirurgical Transactions*. I have prescribed it in some thousands of cases, and can speak

It appears to operate specifically upon the stomach. So striking is this, that, although the benefits above described arise from its proper administration, an over dose will in every person occasion nausea, vomiting, and a pain and tightness of the præcordia.* These effects take place even if it is applied externally in excess. A woman who employed it locally not much diluted with water for intense prurigo pudendi, always experienced, in about ten minutes, nausea, vomiting, and presently afterwards vertigo and a degree of syncope. It may of course be so employed as to overpower the

decidedly of its excellence. When pain arises from inflammation or congestion, it is not a suitable medicine, and in organic disease it must be only a palliative. In gastrodynia, enterodynia, the tormina of dysentery, &c. chronic rheumatism, mercurial and syphilitic pains, periodical pain of the head or other parts, &c. it is really invaluable. Most adults require half a grain; few more than two grains. No one need fear beginning with a quarter of a grain. The dose may be increased every day or two by a quarter of a grain till benefit or inconvenience takes place. The usual inconveniencies are dryness and heat of the throat, dimness of sight, and pain of the head. When the two latter are felt, the dose must remain stationary or perhaps be diminished. Patients should be prepared to watch its effects and manage the doses accordingly. The dryness and heat of the throat are very common, and may generally be borne. If the bowels are kept rather freely open, as may be easily done, from its not constipating like opium, it is much less likely to disagree. It must be mismanaged to produce much inconvenience, not to say danger. It should in general not be given oftener than morning and evening; but extreme agony may make it necessary three times a day, and in periodic pain I usually direct it every two or three hours till it brings ease or produces inconvenience. The largest dose I have ever given has been seven grains twice or three times a day, once in internal disease, and once in pain of the back. In cough it is much inferior to other narcotics, if not perfectly useless.

The Belladonna appears to possess very nearly identical properties with Stramonium. See an excellent list of cases in Mr. Bailey's *Observations on the effects of Belladonna in painful affections of the Face.* This gentleman carries its effects much farther than I have ever found necessary with Stramonium.

* Dr. Brown Langrish observed the same in his experiments with the Laurocerasus. l. c.

system without any previous symptom whatever. For while I assert that it has a specific action on the stomach, I do not deny its direct influence upon the nervous system. The vertigo, syncope, &c. which it may be made to produce, might be explained by its influence on the stomach being communicated to other parts; but as these and its fullest effects may be induced by its external application in great strength even to the eye,* the denial of its direct agency upon the nervous system as well as upon the stomach would be childish.

I should fear that it must prove but a palliative, and sometimes not even that, when the derangement of the stomach originates from a structural disease of the organ itself or from sympathy with another. In tuberculous disease of the abdomen, the stomach often sympathises, experiencing nausea, vomiting, and a broiling heat with excruciating pain.† I have seen this in children and found it very difficult to mitigate, but shall now certainly expect more from the acid than from any thing else. In the vomiting of fevers and autumnal bilious diseases, the remedy deserves a trial. These are all cases in which it can be exhibited but as an auxiliary, and whenever a morbid state of another organ is detected,—of the liver, intestines, &c. this should of course be treated in the usual manner, as there is always a possibility of this being connected with the affection of the stomach.

When the function only of the stomach itself is dis-

* Dr. Majendie, *Récherches Physiol. & Clin. &c.* p. 5.

† Dr. Barron, *An Enquiry illustrating the nature of tuberculous diseases of serous membranes, &c.*

turbed, the remedy should be given two or three weeks after a cure appears effected. And when such is the case, we must recollect that the derangement is so frequently habitual and excited by circumstances in the mode of living, state of mind, &c. &c. which still exist, that a recurrence of the symptoms may sooner or later be expected and the medicine be again required. This I have seen after a lapse of six, nine, or twelve months, but the return has been such as to yield more readily than before, if treated early. I am anxious not to overrate the powers of the medicine, and wish to affirm only that, managed judiciously, it is very far superior to any other in derangements of the stomach.

The dose (without alluding to any particular complaint,) has a very small range. Almost any adult will bear one or two minims; few more than five; three are generally borne and required, and very frequently four. One woman in consumption took ♏ xvij. t. d. without inconvenience or benefit: eighteen brought on vomiting and giddiness. The youngest infant will bear a quarter of a minim,—half a drop, (a minim of it contains two ordinary drops) and little good is usually derived from less than half a minim. Many children a few years old bear a minim and a half. The first dose, therefore, for an adult may always be one or two minims; for a child a quarter of a minim, and the dose of the former may be augmented half a minim and the latter a quarter of a minim every second day, till either benefit is derived or the medicine begins to disagree. In the latter case, the dose must of course be diminished sufficiently to agree.

With this precaution the medicine may be always

exhibited without inconvenience. For the increase is so gradual, that whatever disagreement occurs is so small as to be a warning rather than an inconvenience. An inclination to vomit or a little giddiness is among the first signals for the diminution of the dose. An over dose occasions vomiting, pain and tightness of the stomach, faintness, and giddiness. These effects, however, soon cease. I have known a patient take eight minims when I had prescribed but one, and persist in taking this dose for several days till I was seen, vomiting and almost fainting every time, and yet experiencing no further ill effect. I have never known, from mistakes in its administration, more than temporary inconvenience.* It has scarcely any operation on the bowels, but what little it has is unquestionably of a constipating nature. Now and then it may relax them. Occasionally it augments the flow of urine. Some patients have said it produces a head-ache; some a warmth of the stomach; some few a transient dimness of sight and sleepiness; some a tingling of the skin. The occurrence of a tremor or considerable feeling of debility may give rise to the necessity of suspending its exhibition for a time or diminishing the dose. Like all medicines I presume that it will suit some persons in no quantity; but where it dis-

* Dr. Cullen on this point deserves to be quoted. "We do not find room to say any more on the medicinal virtues of the lauro-cerasus; but, from its general powers they are certainly probable, and will hereafter, in the hands of a future Storck, be ascertained. To encourage such enquiry, we must remark, that the lauro-cerasus has hardly in any experiment shown any tendency to produce topical inflammation; and in many experiments on brutes, though the employment of the lauro-cerasus has been carried so far as to produce various and violent disorders of the system, yet upon withdrawing the exhibition of it, the animal has soon after recovered a seemingly entire state of health."

agrees it is generally improperly managed,—the dose either begun too large or incautiously increased. From the injudicious, I may say careless, administration of it, many practitioners have censured it very unjustifiably. I do not hesitate to prescribe the Hydrocyanic Acid for patients whom I have not an opportunity of seeing more than once a week, or who perhaps reside far in the country. There is no medicine, —neither arsenic, mercury, nor stramonium, &c. except digitalis,* with which I am not accustomed to do the same. If directions are given for very gradual increases of the dose, and patients are made fully acquainted with the symptoms which indicate that the dose is becoming too strong and must be rather decreased, there can be no hazard of inconvenience. When patients are sufficiently intelligent I rarely object to acquaint them with the medicine which is prescribed, for it is not desirable to attend any one who is not perfectly assured that the means employed are calculated for his benefit.

I have always ordered the acid to be taken every eight hours; as more frequent, though smaller, doses are both troublesome to the patient and do not so well enable a practitioner to observe the increase of effect. It should not be taken, at least in the accustomed dose, the first thing in the morning, for I have repeatedly observed that what was a suitable dose in the middle of the day and in the evening was too powerful before breakfast,—coming immediately in contact with the empty stomach.

* In excepting digitalis I mean only when intended to produce a strong effect. Small doses may of course be ordered in conjunction with other remedies for a length of time with perfect safety.

When coldness of the stomach is complained of, simple cold water cannot be drunk with propriety, and it is therefore better given in aromatic waters. I often unite it with bitter infusions. But its virtues are perfectly independent of these vehicles, as I have proved by employing them in great variety, arbitrarily changing them, and then substituting plain water, while yet the good effects remained undiminished.

I have not found it excite sickness more readily by being prescribed at the same time with calomel or even such medicines as are always disposed to occasion nausea and vomiting, v. c. squils, digitalis, antimonial powder. A case will hereafter be related in which some minims of it were taken with above a drachm of antimonial powder three times a day without nausea. It should be kept in a cold place, secluded from the light by dark paper or other means.

For my own satisfaction, I requested my friend Dr. Prout to make some trials of the acid in complaints of the stomach, and the following is part of a letter from him on the subject.

"The first case in which I gave the prussic acid was one of gastrodynia in a poor woman between 40 and 50 years of age. She had for several years been subject to this distressing affection, which, in spite of all the usual remedies, had continued to get worse, and latterly had become so severe that blood was frequently thrown up from the stomach. The quantity ordered was gutt. xx. in ʒviij. of distilled water: the dose from one to two table spoonfuls three times a day. This produced almost instant relief, and in a day or two the pain in the stomach was nearly completely removed;

when she was suddenly seized for the first time in her life with a severe attack of gout in both feet. The prussic acid was now ordered to be discontinued, or at least to be taken only once a day, and the disease was treated as gout with colchicum, &c. In a day or two this new affection seemed to yield, when the stomach became again affected, not however so severely as formerly, but with symptoms at the same time urgent and anomalous. The prussic acid was now again had recourse to, and again the disease, leaving the stomach, returned to the feet; and imperfect metastases of this kind took place two or three times. The last time the disease returned to the stomach her life was despaired of and she lay in a sort of stupor for several hours, during which time, as she afterwards stated, she suffered the most extraordinary and indescribable agonies, particularly about the præcordia and abdomen. Cordials were administered rather freely in conjunction with the prussic acid, and the disease finally quitting the stomach settled in the feet, when it gradually subsided like a common attack of gout. She continued, as may be supposed, in a weak state for a considerable time, and it was nearly two months before she completely regained the use of her feet so as to be able to walk out. She at length however completely recovered, and with only a little common attention to the state of her bowels has continued perfectly well above a year.

"The next case I shall mention was one of gastrodynia connected with colica pictonum. The patient was a young man about 25, who had been for some months in the habit of using externally the carbonate of lead for a cutaneous affection of the hands. At length symptoms of the lead colic began to shew them-

selves. These, being attacked early, soon subsided. But a severe gastrodynia, with which they had commenced, continued in spite of the common remedies. The prussic acid was ordered for him also in somewhat larger doses. Instant relief was obtained, which at first was only temporary, but by persevering in the use of the remedy for a week or two, the relief became permanent and the disease has not since returned.

"A third case in which I found the prussic acid instantly give relief was one of the nature of pyrosis, unaccompanied by pain. The patient was a young man in the prime of life, who from the sedentary nature of his occupation was subject to dyspeptic symptoms, but who otherwise enjoyed excellent health. One of the most troublesome of these symptoms was a constant discharge of watery fluid from the salivary glands and also from the stomach, according to his own account, amounting in 24 hours to several pints. In this case there was no pain or uneasiness whatever about the stomach, and the prussic acid was given merely by way of trial. It was ordered precisely in the manner mentioned in the first case, and I was gratified to learn from him several months afterward, that before he had taken one bottle the complaint had entirely subsided and had not returned.

"Were it necessary I could relate several other cases analogous to the above, in which I have found the prussic acid beneficial. In short, I may say that only one case has occurred to me where it did not prove successful, and this I attributed to the irregular manner in which it was taken. I believe therefore that prussic acid will prove one of the best remedies in

affections of the stomach yet known, at least I know of none on which I should rely with so much confidence.

"I have seen little of the effects of this remedy in consumption, but in one or two cases of chronic cough it appeared to be of no use. I have never seen its effects in pertussis.

"With respect to the mode of operation of this remedy I can say little. It frequently produces a momentary sensation of sickness and giddiness, accompanied sometimes by a glow of heat about the præcordia. In one or two instances it appeared to act as a diuretic, and in one case to produce an itching or tingling sensation over the whole body, something like that of nettle rash. I have never seen it produce sleep, nor been able to ascertain that it sensibly affects the pulse. Lastly, I believe it to be a perfectly safe remedy, as I have never seen the least ill effects from its use; but like all powerful medicines it of course requires to be administered with judgment."

SECT. II.

THE HYDROCYANIC ACID IN PECTORAL AND OTHER DISEASES IN WHICH IT HAS BEEN ALREADY RECOMMENDED.

As far as diseases of the chest are inflammatory or organic, the Hydrocyanic Acid has disappointed my expectations. But in what is styled spasmodic cough, —where a cough is either totally independent of inflammation or organic disease within the chest, or violent out of all proportion to the pectoral inflammation or organic disease that gives rise to it, the acid appears to me extremely valuable.

Professor Brera highly extols it in *Pneumonia*,* and probably, if exhibited in doses sufficient to lay the whole strength of the body prostrate, it may be very serviceable: but I confess that of all the inflammatory cases in which I have employed it, although even to sickness, I do not recollect one in which the abstraction of a single ounce of blood or the exhibition of a single grain of calomel was rendered less necessary by it. Where, however, pneumonia is attended by a cough out of proportion to the inflammation, as often occurs in very mild cases and at the decline of severe ones, especially in children, it is an excellent remedy, and its exhibition may be commenced as early as the practitioner thinks proper, because if it does not diminish, it certainly does not appear to increase, inflammation.

* *Prospetti de' risultamenti ottenuti nella clinica medica, &c.* p. 29. Padova, 1816.

Dr. Granville affirms "without presumption that no case of *hooping-cough* need be suffered to proceed longer than eight or ten days, if the prussic acid be timely and cautiously administered."* I cannot say that my experience justifies an assent to this proposition. Hooping-cough is often attended by inflammation, and the preceding remarks respecting inflammation therefore apply to it. A cough, while being treated with prussic acid, has suddenly acquired the whoop, become attended by marked inflammation of the lungs, and compelled me to employ bleeding, &c. But if inflammation is opposed by the ordinary means, the spasmodic part of the disease cannot, I think, be treated with other medicine equally efficacious. Since the cough is always out of proportion to the inflammation that may be present, however intense this may be, the acid may be used, I apprehend, throughout the complaint, even while antiphlogistic measures are being pursued. Feverishness with constant difficulty of breathing show more than a spasmodic affection to exist, but I have been lately astonished to find how violent the disease may be without any inflammation or organic change within the chest. I was suddenly called to an infant in convulsions which had begun some hours before. It had been labouring most severely under hooping-cough for a month. I instantly took away a large quantity of blood from the head by leeches, but was too late; the convulsions, insensibility, squinting, &c. never ceased, and the child died in two hours.

* *Further Observations on the internal use of the Hydrocyanic (Prussic) Acid, &c.* p. 24. Dr. F. P. Fontaneilles seems to have first used it in hooping-cough, *Description de la varicelle qui a regné épidémiquement et conjointment avec la variole dans la ville de Millau en* 1817. MONTPELLIER.

On cutting the brain innumerable large orifices of blood vessels appeared, and the arachnoid* membrane of the ventricles was an uniform scarlet tissue of vessels:† although the hooping-cough was violent to nearly the last hour, the lungs and trachea were perfectly free from the smallest mark of inflammation or any other disease; a little mucus only was found in the ramifications of the bronchiæ. This case explains why the acid is so generally serviceable in hooping-cough. Convulsions are a common effect of hooping-cough, and here arose from it as a disease purely spasmodic.

In *simple dry cough* without pain of the chest, constant dyspnœa, or fever, whether in children or adults, the Hydrocyanic Acid appears to me an admirable medicine, deserving all the commendations which it has received.

In purely spasmodic *asthma*, I have found it beneficial. But when we recollect how few cases of asthma are independent of organic disease of the heart or lungs, or at least of such weakness of the lungs as is alone sufficient to occasion a degree of congestion, there can be no reason to wonder that I have found its use in asthma extremely limited. No one can be more disposed than myself to ridicule those who ride hobbies. Since, however, the prussic acid has little or no soporific or general anodyne power, but is specifically soothing to the stomach; since in all spasmodic affections of the chest, the stomach is very much concerned, as shown by

* Bichat, *Traité des Membranes*. 216 sq.

† The absurdity of attempting to cure such a case by assafœtida and other antispasmodics (however proper in many instances) and not by bleeding and mercury, was striking.

the increase of the paroxysms of hooping-cough after meals, and the flatulence and dyspepsia usully attendant upon asthmatic paroxysms; and since mere gastrodynia is accompanied by dyspnœa, and a blow on the stomach will at any time impede or suspend respiration, I do feel inclined to attribute some of the benefit of the prussic acid in spasmodic affections of the chest partly to its effects upon the stomach alone, and partly to the communication of these soothing effects from the stomach to the organs of respiration with which it holds so close a sympathy.

The Hydrocyanic Acid must, I fear, be added to our list of medicines that have been fruitlessly tried to cure *consumption*. I have employed it in vain too often, both at the very commencement and in the advanced stage of phthisis, to believe it a remedy for this disease. That it is extremely useful when the cough is disproportionately violent, or the stomach deranged, is certain. It will often for a time make the patient feel so much stronger and more comfortable, and even, I think, sometimes sweat so much less, as to hope that he is getting well. But the disorganisation steadily proceeds. Neither can there be any doubt that it will cure many cases improperly considered as consumption,—cases of cough, expectoration, &c. dependent upon derangement of the stomach or mere excessive excitability of the chest. But such cases are every day cured also by other means. In consumption, it may be frequently used as a palliative with advantage; but to extol it as a remedy is only doing an injustice to a most useful medicine. If the Dutch physicians, who formerly prescribed the laurocerasus in this disease, had discovered a specific, there is little probability that the knowledge would have been

lost. I have already stated that it has not shewn in my practice any direct power of controlling the circulation, like that of digitalis, and therefore in pulmonary and other *hemorrhages* my experience has not in the least realised the expectations held forth of its "marvellous" and "miraculous" effects:

Nor in *palpitation*, unless this was decidedly dependent upon disorder of the stomach:

Nor in mere throbbing and heat, of the head for instance:

Nor in any diseases called *nervous*, except in those derangements of the stomach which are frequently so named and some cases of which have been related, and in the derangement of other parts arising from those of the stomach. The epithet nervous strictly belongs to inconstant derangements, not in themselves inflammatory or organic, whatever may be their source, accompanied by depression of spirits, and remarkably influenced by the state of the mind. Some authors contend that they generally arise from inflammation or congestion, but such appears a very narrow view of their source. They often do arise from such a cause, and often from some organic disease, but as often from mere debility or excessive excitability, and remedies are not rarely required to remove both inflammation of one part and languor of another. A large number of nervous cases are really derangements of the stomach only, or of the stomach and other parts sympathising with it, and to such the Hydrocyanic Acid is admirably adapted:* but when

* I have been very successful with the acid in a nervous pain rather to the left side of young females, and probably seated in the stomach. They are subject also to a pain of either side, farther back, accompanied often by head-

even the stomach is deranged, it cannot be expected to relieve materially if inflammation, congestion, or organic disease, lies at the bottom of the disorder. Enlarged views of the causes of disease and a patient enquiry into the particular circumstance of each case are in no complaints more indispensable.

Of its use in diseases of the nervous system, anatomically speaking, I have little experience. Evacuants are generally so necessary in them that much cannot be expected from it. In hysteric and epileptic fits I have tried it without advantage. The only case of chorea in which I prescribed it, was indeed presently cured. I have thought it serviceable in the shaking palsy of the head. For tremor of one or more extremities, and indeed of the whole body, when connected with stomach derangement, it is a satisfactory medicine. I put several maniacal patients under a course of it without the slightest advantage, but can conceive an overpowering dose occasionally useful in a violent paroxysm. It has been suggested as a remedy, like every other when spoken of by writers, for various disorders: not only for spasms of the stomach and diaphragm, but in such affections of the nervous system as locked jaw, tic douloureux, and hydrophobia. Any one may thus suggest ad infinitum, but facts only are required by the public, and I know of none respecting its exhibition in the three latter complaints.* If the spinal marrow

ache, costiveness, and defective menstruation, that requires bleeding, blistering, &c.

* After this page was written an old woman labouring under gastrodynia and a violent pain of the upper part of the orbit and side of the nose, intermitting, shooting, and instantly brought on by gently touching the skin, has been materially relieved in both respects by the acid. She is still a patient at the hospital.

is always inflamed in tetanus* and hydrophobia,† very sanguine expectations should not be raised of its utility in these two diseases, however proper must be a trial of its powers.

From having never relieved rheumatic pains by its means, I was not surprised to find it produce no mitigation of the pains arising from cancer of the womb; in four or five such cases of its exhibition at St. Thomas's Hospital, it has completely failed in controlling the disease, notwithstanding Professor Brera recommends it for that purpose.

This gentleman praises it likewise for expelling

* See Dr. Reid's work *On Tetanus*. Two dissections of the spinal marrow of tetanic patients have been made at St. Thomas's Hospital, and it was in each found severely inflamed. I have since heard of two other similar instances.

† I last year examined the brain and spinal marrow of a little girl who had died of hydrophobia. She and a sister about the same age were bitten both in the upper lip at the same time, by a mad dog; she however was bitten *last*. Caustic only was applied. The disease appeared in three weeks. The sister became languid at the time she fell ill; and two or three times afterwards the languor returned: but hydrophobia has not occurred. When sent for to the former, I recommended the latter to be salivated, principally on the faith of a writer in the *Medical and Chirurgical Journal* who resided long in India and saw much of the disease and affirms he never knew an instance of its occurrence if salivation was effected after the application of the poison, although I was aware that such occurrences were upon record. Large quantities of mercury were administered without affecting the gums, and it was only by wetting the body night and morning with a strong solution of the oxymuriate of mercury that they were at length made sore. I had taken some prussic acid with me for the case of hydrophobia, but feeling it right to use a remedy already recommended before making a mere experiment, I prescribed profuse venesection. The more the blood flowed, the more violent did the convulsions become, and, though seized only fourteen hours before, she died in two hours, without my being able to administer the acid. I shall certainly not bleed again in such a case. The vessels of the pia mater were more turgid than usual,—a circumstance generally mentioned in accounts of dissections after this complaint. Neither the brain nor spinal marrow could be justly

worms alive from the intestines.* Of three dogs put by Dr. Brown Langrish under a course of lauro-cerasus, two discharged live ascarides; and, without knowing that the fact had been remarked, I noted in my case-book that several patients taking the acid for various complaints discharged ascarides alive, some in immense numbers. One infant discharged about a dozen very lively larvæ of the common fly, and from that moment lost a cough which had long tormented it.† The Prussic Acid cannot, however, be depended upon as an anthelmintic. I have frequently employed it perseveringly without expelling one worm, when a dose of calomel has instantly brought away hundreds.

EXTERNALLY the Hydrocyanic Acid has not answered the expectations which might have been formed from its powerful and distinct nature. I have used it

pronounced inflamed, but the spinal canal contained a large quantity of bloody fluid. Dr. James Johnson found the base of the brain, the medulla oblongata, and the medulla spinalis, intensely inflamed in a man who had fallen a victim to Hydrophobia. Water was effused on the surface and within the ventricles, and a large quantitity of bloody serum ran from the vertebral canal. (*Med. Chir. Journal.* 1817.)

* I vermi cotanto familiari al popolo Padovano, e che imprimono una essenziale complicazione al massimo numero delle malattie, che si trattano nello Spedale, non resistono all' amministrazione dell' acido prussico e sono prontamente eliminati vivi dal tubo intestinale. *Prospetti clinici.* 29 sq.

† They might well live in the intestines, for Dr. Leech, of the British Museum, to whom I shewed them, says he has known them live in tobacco. I have had two unquestionable instances of a live cabbage caterpillar being discharged from the intestines, one in a woman, the other in a boy five years old. Cases of a variety of creatures living in the bowels besides the usual intestinal worms are on record, but these occurred to myself and the animals were shown to my

as a wash, diluted in the proportion of one, two, three and four drachms, with a pint of distilled water, in a variety of cases:—in ulcers, simple, venereal, cancerous, scrofulous, impetiginous, &c. inert and highly inflamed, without particular advantage. More than two or three drachms, or even a smaller quantity, sometimes irritates exceedingly. In scalled head it is occasionally useful. I have certainly found it in general of great efficacy in sores behind the ears, and in scabs of the face. To an irritable face, it is very soothing if employed both before and after shaving. It has often relieved prurigo of the pudenda and podex. In one case, intense and of long standing, it absolutely removed all itching for a few days, but was subsequently of no benefit, although applied so little diluted as invariably to affect both the stomach and head: but the vagina, &c. was full of tubercles. I should think its application a most effectual as well as most agreeable mode of destroying vermin.

friends. The infant had partaken of a pretty high pheasant nine months before (at Christmas). The woman was in the habit of swallowing cabbage-stalks when preparing dinner: (it is on them that the noctua pronuba is accustomed to lay its eggs). Her caterpillar was discharged at the end of October. The boy's in April. I may mention that I once prescribed the acid without much advantage in a case of very severe gastrodynia, and at length, suspecting worms, gave two ounces of the oil of turpentine. The woman discharged no worms, but a large quantity of fine fibrous matter, and completely recovered. These fibres burnt like flax; she was a mantua-maker, and in the habit of biting her thread.

PART II.

THE two Sections of this Part treat of different subjects.

In the first are detailed two striking illustrations of the immense doses that are required, of even the most powerful medicines, to produce an impression under great derangement of the system, and numerous examples are given of the large doses that under any circumstances may be gradually borne of a medicine in regard to which such an expectation would scarcely have been formed.

In the second some cases are related of the exhibition of the only medicine that is perhaps uniformly beneficial in Diabetes.

SECT. I.

SOME FACTS RESPECTING THE NECESSITY OF VARYING THE DOSES OF MEDICINES ACCORDING TO CIRCUMSTANCES.

THE doses of medicines must necessarily be varied in different individuals according to age and peculiarity of constitution. But even in the same individual they require variation at different times according to the state of his system and the quantity previously taken. No fact is better known than that in diseased states a dose may be given with eminent advantage which in health would prove fatal; and that even in the most healthy state the doses of medicines may be gradually increased to an equal pitch.

To be vigorous, a practitioner need not be rash, and I am convinced that far, very far, more lives are lost from want of vigour than from rashness. Nothing can be more silly than to boast of habitually giving large doses of medicines, but nothing can be more reprehensible than to give, in an acute case of extreme derangement, doses which are proper in an ordinary indisposition, or, in chronic diseases, to continue doses which habit has rendered inert.

I. The practitioner who is accustomed to proportion his *effects* to the necessity,—sometimes to take away ounces and sometimes pints or quarts of blood,—sometimes gently to open the bowels and sometimes to scour them thoroughly,—sometimes gently to affect the gums

in a week and sometimes to induce ptyalism in a few hours, will not, if properly acquainted with disease, hesitate to proportion his agents likewise to the difficulties which in extraordinary states of the system are sometimes opposed to their operation even when no strong effect is desired. He is under no necessity to run any risk, because he may always feel his way. If a powerful, though perfectly safe, dose produces, after a suitable time has been allowed, no sign either of the effect desired or of any other, he is justified in administering a still stronger dose; and so he may steadily advance. I do not deny that the power of remedies sometimes silently accumulates and suddenly manifests itself, because such an assertion is made by respectable practitioners, but I never met with such a case, and I believe that, in the majority of such instances, the commencement either of the decline of the diseased state or of the action of the remedy has not been detected when it might have been, and the doses carried on therefore quite unjustifiably.*

* Dr. Percival, in his *Essays Medical, Philosophical, and Experimental,* (vol. i. p. 421. sq.) states that Dr. Vaughan of Leicester "gave to a Lady, in the fifth month of her pregnancy, who had an acute pain in her bowels which threatened abortion, twenty-two grains of the Extract of Opium, and three hundred drops of Laudanum, in the space of thirty-six hours, and by these means, and these alone, she perfectly recovered." He then adds another case to show the hasard of such doses from the changes to which the nervous system is liable. A youth was admitted into an hospital on account of a violent spasmodic disease which recurred regularly in the evening, and, after trials of various remedies, doses of opium sufficiently large to mitigate the violence of the paroxysm were ordered, and he took twenty-two grains every night during a week without any soporific effect. "On the eighth night it was observed that he had no return of the spasm, and in the morning he was found dead." As no spasm occurred on that evening, he ought certainly not to have taken the large dose of the remedy, for it is not the apprehension, but the actual existence, of a preter-

The first case was one of the exhibition of opium.

On Nov. 2, 1818, about 8 o'clock in the evening, I was suddenly called to a young woman who was pacing the drawing-room with great rapidity, fetching very quick and short inspirations, and occasionally one of extreme depth, all attended by a whistling noise in the throat, compelling her to have the windows open, and increased whenever she sat down. She had long been subject to a dry barking cough which began after the disappearance of the mumps, and she was bled for it but a few days before. The attack had commenced only a short time before I saw her. Tincture of opium, ether, &c. were sent for, and in the mean time a vein was opened. As soon as the blood flowed, the symptoms ceased, but soon recommenced. Sixty drops of tincture of opium were given, in a strong draught of ether, camphor, and ammonia, without effect. A vein was again opened with the same temporary benefit. Seventy drops more of the tincture of opium were given in a similar draught without alleviation. The paroxysm grew so violent, that she was sinking to the floor and apparently about to expire, when a vein was a third time opened, and, as before, with instant relief. The attack, however, continued, and I gave seventy drops more of the tincture of opium. In half an hour she felt rather sleepy and the paroxysm presently terminated,—about two o'clock. At eight o'clock the same morning, the paroxysm returned, though less violently. A f℥i. of Tr. Opii was given at once without relief, and

natural state that justifies such doses and renders them, as they were in this instance every previous evening, perfectly safe. So far from this case being calculated to make a practitioner timid, it should make him the bolder, but guard him against inattention.

every ten minutes a dose of the Tr. Ferri Muriatis, at first gutt. xxx, and gradually more till the dose reached gutt. C. and this without sickness. Even this paroxysm was so violent that an old experienced physician, who witnessed it, declared she would die. He recommended squils and a blister. About two o'clock the paroxysm subsided, though it did not entirely cease, and a drachm of Bark was ordered her every hour. Late in the evening the symptoms acquired fresh violence. Two doses of the Extract of Stramonium, of gr. j ss. each, were taken within a quarter of an hour without sensible effect, and f ʒij. of Tr. Opii were then exhibited, which put an end to the attack and gave her a good night.

The complaint returned slightly the next morning, but was soon dispelled by two draughts, each containing f ʒiss. of Tr. Opii, and f ʒi. of Ether.

From all this she felt extremely weak, had rigors followed by heat, and sweated profusely: she therefore took bark and sulphuric acid, and in a few days was as well as before her illness.

On account of her cough, I prescribed iron, by which I have very frequently cured coughs purely spasmodic: she took ʒiss. of the Carbonate of Iron four times a day, and gr. j ss. of Ext. Stramonii three times a day with but imperfect relief.

After a lapse of three weeks she had a severe paroxysm exactly like the former, and it recurred pretty regularly every evening; in spite of f ʒiss. or f ʒij. of Tr. Opii, &c. &c.

On the 5th of December, I told the gentleman who was in constant attendance upon her, that as Tr. Opii had been given to the amount of half a pint with ℈i. of solid Opium during twenty-four hours in cases of Teta-

nus,* I would increase the doses till some effect was produced. Accordingly he gave her f℥iij. when the paroxysm began in the evening; as this had no effect, f℥ij. more were given in three quarters of an hour afterwards, and, this quantity having no effect, f ℥i. more was given in an hour. The attack now gave way.

The next evening, Dec. 6, it returned. Immediately f℥vj. were given, and, no effect appearing in an hour and a half, f℥ij. more were then administered. The carbonate of iron in doses of ℥ij. with gr. j ss. of Ext. of Stramonium, were ordered in the intervals of the paroxysm four times a day.

On the evening of Dec. the 7th, the attack returned, but with less violence: the same medicines were continued.

On the 8th, as soon as the paroxysm returned, ℥i. of Tr. Opii was given, and the disease disappeared till the 14th: after this time the iron and stramonium were regularly taken.

On the 14th, when the paroxysm commenced, f℥i. of Tr. Opii was given; and in about two hours f ℥ij. more, with the effect of putting an end to it, and, as usual,

* Dr. Currie gave ℥v ss. of Tr. Opii in twenty-six hours to a patient in Tetanus before drowsiness took place. The man recovered. (*Transactions of the Med. Society of Lond.* vol. 3.) In this disease Dr. Morrison begins with 100 drops of it and gives a dose every two hours, increasing each dose by one third of the preceding, till some effect is produced. He once gave ℥viij. in twenty-four hours with twenty grains of solid Opium. (*A Treatise on Tetanus.* 1816.) He also allows as much wine and ardent spirits as can be borne. Above half his patients thus treated have recovered, and his experience has been very extensive from having practised eight years among the Negroes in Demarara. Dr. Currie had a patient recover who drank 110 bottles of wine in 42 days. How this is to be reconciled with the recently discovered morbid anatomy of the disease remains to be determined. Dr. Morrison, however, likewise induces ptyalism quickly.

giving her some comfortable sleep, but producing no farther effect.

After this period she continued to have pretty constantly more or less spasmodic dyspnœa with occasional paroxysms. Recourse was had for a length of time to a variety of means which it is unnecessary to mention.* She is at present subject to a little difficulty of breathing in cold weather, but requires no medical assistance.

I am not aware that there is any case on record equal to the following in the magnitude of the doses of Calomel and in the whole quantity taken. The patient was a lad about nineteen, and had been insane above a twelvemonth. He recognised every body, recollected every thing that he had known before, and sometimes was pretty rational, but every week or two became unable to talk many minutes without wandering, and in a few days completely delirious, and he was sometimes very violent: the exacerbations, however, were not always regular.

His head was hot and painful, his bowels costive, his abdomen hard, the epigastrium and right hypochondrium tender on pressure, his breath and body offensive, and his tongue loaded with yellow mucus; he was always spitting, generally to the amount of a pint

* She on two occasions took at once in a paroxysm ʒij. of the carbonate of ammonia, with no other inconvenience than that of seeing all objects very much magnified for a time, starting every now and then, and feeling hot in the throat. This may appear a large quantity, but Dr. Vaughan of Leicester once gave a patient ℈ij. every four hours for two days, and even ʒss. in the course of the day for three weeks with the effect of merely a heat in the fauces and a warmth of the stomach: blood drawn was florid, and perhaps firmer and more abundant in serum than usual. *Transactions of the Med. Society of London*, vol. i.

or a pint and a half in the twenty-four hours when at the best; but during the paroxysm he would never spit a drop, and the diminution of the spitting almost with certainty portended that a paroxysm was approaching. From these circumstances I determined on purging him regularly and affecting the mouth by mercury.

The following is my journal of his case.

Aug. 15, 1817. Vesperi. Calomel gr. vj. statim et cras mane. Two perpetual blisters, one to the occiput and one to the right hypochondre. Abstinence from animal food and fermented liquors.

16. Vesperi. One motion. Cal. gr. viij.

17. ——— One motion. Cal. gr. viij.

18. ——— One motion. Cal. gr. viij.

19. ——— Three motions. Good discharge. Tranquil and obedient. Says he is better. Keeper thinks he has more reason. Nausea. Sweat about the forehead in the morning. Apprehensive of imaginary danger.

Elaterii, gr. j.

20. ——— No motion. Vomited once in the night, and was violently delirious. Hot.

Cal. gr. xvj.

21. ——— Two motions. Tranquil.

Cal. gr. xvj.

22. ——— One motion. Fæces hard. Tranquil.

Cal. gr. xvj. Elaterii, gr. j.

23. ——— Four motions. More discharge. Less fœtor of breath and body. Pain of head. More reason.

Cal. gr. xvj.

24. ——— Five motions, fluid. Weaker, thinner; angry from pain of the blisters. Pulse quicker.

Cal. gr. viij.

25. Vesperi. Four motions. Cal. gr. viij.

26. ——— One motion. Tranquil.

Cal. gr. xx.

27. ——— Four motions. Fæces yellow, and, as usual, copious. Perhaps more reason.

Cal. gr. viij.

28. ——— Three motions. Fæces of a brighter yellow. Urine has gradually become as pale and clear as spirit. Much reason, but aspect maniacal. Very slight mercurial fœtor. Sputa lessened. More pus from nape of the neck. None of former fœtor.

Cal. gr. viij.

29. ——— Two motions, almost white. Pulse 110. Scarcely any sputa. Flushed, loquacious, and more delirious. Cal. gr. xx.

30. ——— Three motions, darker, and rather green. Less irritation. Pulse 100. Head hot. No sputa. Cal. gr. xx.

31. ——— Three motions. Tranquil. But pulse, and heat of head, the same. Less discharge.

Cal. gr. xx.

Sept. 1. ——— Two motions, more solid. Less delirious. Says he can think better.

Cal. gr. xxiv.

2. ——— Two motions. Plenty of discharge and sputa. Tranquil and comfortable. Less heat of head. Abdomen hard. Pulse 96. Urine clear.

Cal. gr. xxiv. Elaterii, gr. j.

3. ——— Two motions. Vomiting after breakfast. Pulse 100. (Heat of weather intense.) Weaker. Rather thinner. Walked four miles. Abundant discharge from neck. Cal. gr. xxiv. Elaterii, gr. j.

4. ——— Three motions. Bilious vomiting night

and day. Pain of head, which is hot. Pulse 90. Discharge and sputa copious. Tranquil. Silent and sad. Perhaps more reason.

5. Vesperi. Three motions. Pain of Head. Tranquil. Pulse 84.

6. ——— No motion. Urine gradually become less pale. Pulse 72. No pain of head. Tranquil. Slept well. Sputa abundant. Thinner. (Heat of weather intense.)

Cal. gr. xvj. Blister of right hypochondre to be dried up.

7. ——— Two motions, dark and almost solid. Tranquil. Slept well. Head not hot. Sputa copious.

Cal. gr. xxiv.

8. ——— No motion. Tranquil, but talks nonsense. Slept ill—laughed and talked. Pulse 80. Sputa copious. Cal. gr. xxiv.

9. ——— Three motions. Cal. gr. xxiv.

10. ——— One motion, knotty and sparing. Pain, but not heat, of head. Pulse 80. Tranquil.

Cal. gr. xxxij.

11. ——— One motion, dark and knotty. More sputa; slept well; scarcely delirious the two last days. Pulse 80. Cal. gr. xxxij.

12. ——— Two motions, this evening. Tormina; angry; walked three miles. Keeper thinks him more rational than he has been for many months. Slept well; copious sputa. Copious discharge.

Cal. gr. xxxij.

13. ——— Two motions, rather green than brown. Sputa diminished. Cal. gr. xxxij.

14. ——— One motion. Copious sputa. Pain of head. Irascible, but quiet. More rational still.

Sept 15. Vesperi. Three motions. Pulse 80. Hot. Has not talked of being king or in love for many days. Pulse 80.

16. ——— No motion. Pulse 80. Discharge has lately been very copious. Very rational.

Cal. gr. xvj. Elaterii, gr. ss.

17. ——— Three motions. Pulse 75.

Cal. gr. viij. Elaterii, gr. ss.

18. ——— No motion. More lively. Hums and beats time with his hands and feet. Head hot. Pulse 80.

Cal. gr. xxiv. Elaterii, gr. ss.

19. ——— Four motions. Slight vomiting once. Pulse 80. Cal. gr. xxiv. Elaterii, gr. $\frac{1}{3}$.

20. ——— No motion. No sleep. Slightly excited in the morning. Now tranquil. Pulse 96.

Cal. gr. xxxij. Elaterii, gr. $\frac{1}{2}$.

21. ——— Two motions. Slept well. Hot. Pulse 84. Tranquil. Cal. ℈ij. Elaterii, gr. $\frac{1}{3}$.

22. ——— Two motions. Hot. Pulse 84. Delirious in the morning.

Cal. gr. xxiv. Elaterii, gr. $\frac{1}{3}$.

23. ——— Three motions. Slept well. Scarcely delirious. Hot. Sputa less. Pulse varies from 85 to 105. Cal. gr. xxiv.

24. ——— Nine motions. Watery: one slightly streaked with blood. Violent tormina. Abdomen soft, but not painful on pressure. Pulse 104. Skin very hot. Sputa sparing. Head-ache. Slight violence and delirium in the morning. None at present.

25. Mane. Three motions, watery and greenish, with a greenish oily-looking matter on the surface. Pulse 100, and not only variable, as usual with him when quick, but

mittent; hot; little sputum; quiet. Vesperi.—One motion; more excited.

Cal. gr. iv. statim. gr. iv. h. s.

Sept. 26. Vesperi. Four motions—watery and dark. Urine whitish. No sputa. Pulse 100. Delirium strong.

Cal. gr. viij.

27. Vesperi. One motion. Pulse 100—regular. Skin hot and moist. Excited all night and day.

Cal. gr. xvj.

28. ——— Two motions. Pulse 96 immediately after walking. Less heat, delirium, and turbidness of urine. Cal. gr. xxiv.

29. ——— Three motions—white and soft. Urine clearer but not yet pale. Pulse 100. Delirium more violent. Did not sleep but was tranquil during the night. Cal. gr. xxx.

30. ——— No motion. Cal. gr. xxxviij.

Oct. 1. ——— Two motions—white and more solid. Began to spit again this afternoon. Less delirium. Slept well. Plenty of Discharge. Head ache.

Cal. gr. xxxviij.

2. ——— Two motions—darker. Spits. Pulse 100. Hot. More rational, but was irritable in the morning and did not sleep. Cal. ℈ij. Elaterii, gr. $\frac{1}{3}$.

3. ——— Two motions—dark and copious. Half the medicine spit out. Sputa copious. Pulse 96. Tranquil; silent; but rather wandering.

Cal. ℈ij. Elaterii, gr. ss.

4. ——— Three motions—dark, soft, and copious. Vomited in two hours after medicine taken. Nausea even at present. Abundant sputa. A small part of the dorsum of the tongue near the tip, painful. Pulse 96. Silent; very rational. Elaterii, gr. ss.

Sept. 5. Vesperi. One motion. Pulse 100. Tongue less painful. Elaterii, gr. j.

6. ——— Two motions—dark and watery. Vomited all night. Tongue well. Pulse 84. Silent. Very rational. Cal. ʒ ss.

7. ——— Two motions. Slept well. Walked six miles. Pulse 76. Sputa more copious. Silent. Cal. ℈ij.

8. ——— Three motions. Pulse 80. Silent. Weak.

9. ——— Three motions. Pulse 78.

10. ——— One motion. Cal. ℈ij.

11. ——— Three motions. Cal. ℈ij.

12. ——— One motion. Tormina.

13. ——— One motion—dark and hard. Pulse 84; but he is, as usual this cold weather, too near the fire in the evening. Very reasonable. Has quite lost his notions of being destined to become a king and being in love with a certain girl. Cal. ℈ij.

14. ——— One motion. Read all the Newspaper. Walked seven miles. Pulse 84. Cal. gr. xlv.

15. ——— One motion—solid. Cal. gr. xlv.

16. ——— One motion—solid. Cal. gr. xlv.

17. ——— One motion—solid. Tormina. Cal. gr. xxx.

18. ——— No motion nor pain. Cal. ℈ij.

19. ——— One motion—solid, dark. Nausea. Pulse 84. Elaterii, gr. ss.

20. ——— Three motions—soft, but not watery. Vomited twice in the night. Pulse 84. Elaterii, gr. ss.

21. ——— One motion—solid and dark. No vomiting. More lively, but rational. Copious sputa. Pulse 84. Urine clear. Elaterii, gr. j.

Oct. 22. Vesperi. One motion. Elaterii, gr. j.

23. ——— One motion. Vomiting. Urine turbid. Sputa diminished. A violent paroxysm. Requires the jacket, for the first time since the treatment.

Cal. ℈ij.

24. Mane. One motion—dark and soft. Urine turbid. No sleep. More tranquil. Cal. ℈ij.

Vesperi. One motion—dark and soft; more excited. Pulse 100. Cal. ℈ij.

25. Mane. No motion. Urine no longer turbid, but red. Slept well. Very rational, but lively. Pulse 92. Fewer sputa. Elaterii, gr. ss.

Vesperi. No motion. Vomited once. More tranquil and rational. Pulse 92. Cal. ℈ij. Elat. gr. ⅓.

26. Mane. One motion. Urine turbid. Less discharge and spitting. Pulse 96. Goodnatured, but loquacious. Ol. Ricini, ʒi ss.

Vesperi. One motion. Cal. ℈ij. Elat. gr. ss.

27. ——— Two motions. Urine clear, but red. No sputa. Pulse 96. Goodnatured, tranquil and cheerful, but very delirious.

Cal. gr. L. statim. Ol. Ricini ʒiss. mane.

28. ——— One motion just now, sparing, dark and hard. No sputa. Little discharge. Urine red. Pulse 100. Very delirious. Ol. Ricini, ʒiij.

29. Mane. No motion. Castor oil rejected in about an hour and a half. Slept a little at the first of the night. Urine red. Pulse 120. Very delirious, and, as usual, very proud. Knows every body and every thing, but wanders rapidly.

Cal. ʒi. statim. Ol. Ricini ʒij. in two hours.

Vesperi. One motion immediately after taking

the Calomel. Castor oil not taken. Vomited lately. Tranquil, sleep, much more rational.

Ol. Ricini ʒi. statim, et mane.

Oct. 30. Vesperi. Four motions. Oil taken but once: vomited lately. Sputa scanty. Very delirious. Pulse quick. Elat. gr. j.

31. ——— Four motions. No vomiting. Very delirious. Elat. gr. j.

Nov. 1. ——— No motion nor vomiting. Tranquil, but very irrational. Pulse 120.

Elat. gr. jss.

2. ——— One motion. No vomiting. Fæces dark. Urine clear, but red Elat. gr. ij.

3. ——— Two motions. No vomiting.

Elat. gr. ijss.

4. ——— No motion. Medicine not taken. Was very violent, is now less so. Elat. gr. ijss.

5 ——— One motion. Elat. gr. iij.

6. ——— Two motions. Medicine imperfectly taken.

7. ——— One motion. Pus not fœtid, but profuse by means of Lytta powder, otherwise greatly diminishes when patient violent. Cal. ʒi.

8. ——— Two motions. Tranquil, but delirious.

Cal. ʒi.

9. ——— No motion. Silent, and looks fierce. Sputa again copious. Cal. ʒi.

10. ——— One motion. Sputa more copious and urine clearer. Cal. ʒi.

11. ——— One motion. Medicine not taken.

Cal. ʒi.

12. ——— One motion. Medicine not taken.

Cal. ʒi.

Nov. 13. Vesperi. Three motions. Three parts of the medicine taken. Cal. ʒi.

14. ——— Three motions. Medicine not taken; more placid; has read a little.

Cal. ʒi.

15. ——— Three motions. Sputa copious; urine clear. Rational enough, but very proud and irritable. Half the medicine taken. Cal. ʒi.

16. ——— One motion. Half the medicine taken. Less irritable. Evidently thinner within this day or two.

Cal. ʒi.

17. ——— No motion; sputa and pus copious; urine pellucid; very rational, but low; slight fœtor of breath. Cal. ℈ij.

18. ——— Four motions; says his teeth ache; sputa copious; less tranquil and rational; medicine not taken. Only 1 grain of Elaterium at noon.

Elat. gr. j. statim et cras.

19. ——— Three motions—dark and watery; mouth quite unaffected; pretty rational; pulse 84.

Elat. gr. j. statim; et cras, mane ac meridie.

20. ——— Two motions.

Cal. ʒ ss. statim. Elat. gr. j. cras mane.

21. ——— Two motions; pus less abundant the two last days and fœtid; better.

Cal. ʒ ss. statim. Elat. gr. j. cras.

22. ——— Two motions.

Cal. ʒi. statim. Elat. gr. j. cras, mane et meridie.

23. ——— Two motions; much more civil and rational.

Cal. ʒi. Elat. gr. j. statim. Elat. gr. j. cras, mane et meridie.

24. ——— One motion; vomiting in the morning; rational and civil, but sad and silent.

Elat. gr. j. statim; et cras, mane ac meridie.

Nov. 25. Vesperi. One motion.

Cal. ʒi. Elat. gr. j. stat. Elat. gr. j. cras, mane et meridie.

26. ——— One motion.

Cal. ʒi. Elat. gr. j. statim. Elat. gr. j. cras, mane et meridie.

27. ——— Four motions.

Cal. ʒi. Elat. gr. j ss. statim. Elat. gr. j. cras, mane et meridie.

28. ——— One motion; irascible and haughty.

Cal. ʒi. Elat. gr. ij. statim. Elat. gr. j. cras, mane et meridie.

29. ——— One motion.

Cal. ʒi. Elat. gr. ij. statim. Elat. gr. j. cras mane.

30. ——— Two motions; pulse 94; urine pellucid; pus abundant; vomiting.

Elat. gr. ij. statim et cras, mane ac vesperi.

Dec. 1. ——— Two motions; sputa diminished, though still copious. Cal. ʒi.

2. ——— Four motions. Cal. ʒi.

3. ——— Three motions; sputa very copious; two blue specks on the under part of the tongue.

4. ——— Two motions.

Jalap. gr. viij. Pot. Supertart. ʒi. statim et cras mane.

5. ——— Two motions.

Jalap. gr. viij. Pot. Supert. ʒi. statim et cras.

6. ——— Five motions, of a lighter yellow and watery; ulcers on the tongue better; less pus; sputa abundant; violent fit of passion.

Jalap. gr. viij. Pot. Supert. ʒi. statim et cras.

7. ——— One motion, hard and again dark as usual; sputa less; pus abundant through the lytta, as Ung. Sabinæ always insufficient during the paroxysm; urine red; ulcers still better.

Cal. ʒi. Jalap. gr. xx. Aloes gr. x.

8. ——— Seven motions, fluid but dark; pus abundant by means of lytta powder; scarcely spits at

all; violent delirium; head hot, though constantly wetted with vinegar, spirit, and water.

Cal. ʒi. statim. Aloës gr. xx. Pot. Supert. ʒiij. mane.

Dec. 9. Vesperi. One motion; scarcely spits at all.

Cal. ʒi. Al. gr. xx. Pot. Sup. ʒiij. statim. Pot. Supert. ʒiij. et Aloës gr. xx. mane.

10. ——— Four motions; spits still less.

Cal. gr. xxiv. statim et mane.

11. ——— Two motions, of an olive green; urine pellucid; spits not at all; pus copious. As delirious as ever, but less violent, and slept at night. Pulse 140.

Cal. gr. xxiv.

12. ——— Four motions, green; less delirious, but loquacious; civil; sputa again, but sparing.

Cal. ʒi. ss.

13. ——— One motion, green; delirious, civil, but silent; sputa more copious; urine pellucid.

Cal. ʒi. ss.

14. ——— Two motions, green; delirium less intense. Cal. ʒi. ss.

15. ——— Three motions; irascible and haughty; sputa more copious. Cal. ʒi. ss.

16. ——— Three motions; urine of a higher colour; vomiting; two blue specks on the under part of the tongue. Cal. ʒi. ss.

17. ——— One motion; very rational; specks have become pretty large ulcers, but breath has no smell; copious sputa.

18. ——— No motion; gums, inside of lips, &c. affected, and copious sputa,—a pint or a pint and a half spit per diem; silent; complains of head-ache; pulse 84; slept well.

Aloes gr. xx. Pot. Supert. ʒiij.

19. ——— Six motions, watery and still green;

breath rather fœtid; slept well; quite rational, but low and silent; walked a great deal to day out of doors; head hot and painful; urine pellucid.

Dec. 20. Vesperi. Two motions.

21. ——— Four motions, of a dark brown again; have applied so little lytta of late to the occiput, that the discharge is now inconsiderable.

22. ——— Five motions; still quite rational; eats well and is allowed meat, as he is very thin.

23. ——— Five motions.

24. ——— Two motions.

25. ——— Two motions, of a bright yellow; spits rather less, though abundantly; mouth healing; sleeps well.

26. ——— One motion, yellow; sputa rather less; mouth much better.

Aloes gr. x. Pot. Supert. ʒi. statim et mane.

27. ——— Two motions; spits rather less; mouth almost well; makes faces and jogs one leg while he sits.

Cal. gr. xlv.

28. ——— Three motions in the night, greenish rather than yellow; spits more; vomited this morning; perfectly rational and tranquil; read the paper through.

Al. gr. xx. Pot. Supert. ʒij. mane.

29. ——— One motion, less green; spits more; neck nearly healed; as usual silent, and does not amuse himself.

30. ——— Three motions, brown rather than green; spits profusely; urine pale; silent all day, but conversed very rationally with me to night; pride and some eccentricity in his manner, and when his soup was placed on his table he emptied the mustard pot into it; ulcer of tongue nearly healed.

Dec. 31. Vesperi. Two motions in the night, fluid and brown; animated and perfectly rational in conversation; spits profusely.

Al. gr. xv. Pot. Supert. ʒi. ss. mane.

Jan. 1. ——— One motion, brown; slept well; quite rational and lively; had his sister with him some time, playing at cribbage; spits much less; urine not so pale as before. Cal. gr. xlv.

2. ——— One motion, brown; urine rather high coloured; vomited profusely just before the motion (had dined later than usual); slept well and has been all along rational, but now silent and tired; spits about as much as yesterday.

Cal. gr. xlv.

3. ——— Two motions, of a greenish brown; urine of the same colour; cross and silent, but quite rational.

4. ——— Two motions, copious and green; sputa and urine the same; rational, lively, and good humoured.

5. ——— Two motions, copious and yellow; urine less high-coloured; spits profusely; mouth unaffected; ulcer under tongue not quite healed; perfectly rational; slept well; good appetite; lively and good humoured.

6. ——— One motion, yellow.

7. ——— One motion, yellow; urine still rather high coloured, but without sediment; spits profusely; irritable and a little peculiar in his manner.

Cal. gr. xlv.

8. ——— Two motions, brownish; medicine refused; refuses it now and had a violent hysteric fit on

putting himself into a rage, when compulsion was attempted.

9. Mane. Took by the keeper's persuasion just now Cal. ʒi.
one motion previously, brownish; had a good night and is quite rational, but runs too rapidly from one subject to another; urine high and spits profusely.

10. Vesperi. Four motions, yellow; rational, but talks much and changes the subject rapidly, cross and passionate; slept well; urine clearer; complained of a little griping this afternoon.

11. ——— Four motions, of a dirty green; urine paler; spits profusely; still loquacious, fiery, and rapidly changing his subject, but pretty rational.

12. ——— One motion, brownish green; bad night; loquacious and troublesome; spits less; refuses medicine.

13. ——— No motion; good night and pretty quiet. Cal. gr. xlv.

14. ——— One motion, brown; bad night; very delirious; spits not a particle; urine high; took this morning Al. gr. Pot. Supert. ʒij.

Nocte. Two motions. (Vomited.) Cal. ʒiss.

15. ——— One motion, brown; spits a little. Cal. ʒiss.

16. ——— Three motions, green; a small speck on the tongue; perfectly tranquil; sleepy. Al. & Pot. Supert.

17. ——— Two motions, green; speck gone; spits very little: is very delirious. Cal. ʒiss. Vomited profusely.

18. ——— Three motions, green; urine high and sedimentous; spits above half a pint; mouth appears

sore, but he will not allow examination; more tranquil and less delirious.

19. Vesperi. Two motions. Cal. ʒiss.

20. ——— One motion, green.

21. ——— One motion, green; mouth decidedly sore; spits copiously; tranquil, but rather delirious; urine of a lighter colour.

22. ——— Three motions, green; tongue, &c. ulcerated; spits profusely; good night; quiet, but rather delirious.

23. ——— Three motions, yellow.

24. ——— No motion.

25. ——— One motion, brownish; silent, quiet, rational when he does speak; mouth much sorer than when sore before; spits profusely; urine still high.

Jalap. Aloes. Pot. Supert.

27. ——— Two motions, yellow; rational, tranquil, sleeps well, but is very silent; urine high; spits profusely; mouth has healed rapidly.

30. ——— Five motions, yellow; urine pale; spits profusely; rational, sleeps well, silent, reads; took fol. Jal. & Pot. Supert. twice; only a small speck left on the tongue. Cal. gr. xlv.

31. ——— Two motions, yellow, watery; vomited copiously three hours after taking the Cal. and again in the afternoon. Cal. gr. xxijss.

Feb. 3. ——— One motion in the night, yellow; escaped from his keeper on Sunday and was not brought home till last night; no medicine taken; had walked much and taken wine and a very large quantity of ale; tranquil. Cal. gr. lxxv.

6. ——— Two motions the day before yesterday and two yesterday, yellow; three in the night, green; took about ʒss. of Calomel yesterday; a fit of anger yes-

terday afternoon; spits freely, though not profusely; urine high; vomited a little the day before yesterday, after the Calomel.

I now substituted the Red Oxide of Mercury for the Calomel, and two or three grains every night answered the same purpose. The Calomel had but once appeared too strong for him, and then the griping and purging were no more than many other persons experienced during the same hot weather. His mouth had been sore but twice, and presently got well again. The whole quantity taken was near nine ounces in about six months. It was procured from different places and produced its usual effects on other persons.

By following up the same plan, the paroxysms became milder and the intervals perfectly lucid. He still, however, fell ill every ten or fifteen days, and, becoming at length enervated, the mercury was necessarily omitted from time to time, and the disease always acquired strength in proportion. Bleeding general and local, perpetual blisters to the temples, cold embrocations to the vertex, Colchicum, Hellebore, Prussic Acid, Arsenic in the intervals, Antimonial Powder in doses of 110 grs. t. d., &c. &c. were had recourse to, but he still remains insane. Mercury is the only medicine that he bore in larger quantities than other people, and 5 or 10 grains of Calomel now affect him as much as others, and appear serviceable at the approach of a paroxysm.

II. Nothing is more common than for persons to gradually become able to bear large doses of narcotics. In a case of Diabetes a man will be found to have taken for a considerable period nearly or above forty grains of Opium three times a day. Extract of Hyosciamus and of Conium I am frequently compelled to exhibit in doses

of a drachm or a drachm and a half three times a day, if I determine on continuing their exhibition. I have given 110 grains of each of them in organic diseases three times a day, before the head or stomach were disordered.* Of course very much less is frequently more than can be comfortably borne. It would, however, hardly have been expected that the dose of Antimonial Powder might have been equally increased without inconvenience, and this in nearly the ordinary condition of the body as well as in deranged states.

In the first volume of *The Dublin Hospital Reports*, Dr. Cheyne informs us that James's Powder is highly efficacious in removing the apoplectic diathesis, if given in gradually increased doses till some sensible effect takes place upon the stomach, bowels, or skin. He relates some cases of the fact; and states that eighteen or twenty grains have been frequently given every night for a length of time, without inconvenience. He suggests that it may be useful in epilepsy. I have employed the Antimonial Powder of the London Pharmacopœia in cases of the apoplectic diathesis, but can say nothing of its advantages, because in every instance I felt it my duty to have recourse likewise to the established means, bleeding, mercurial purging, &c. In numerous cases, however, of epilepsy, hemiplegia, head-ache, with throbbing or fulness of the head, vertigo, chorea, various cutaneous affections, and asthma, when ordinary means failed, and I was really at a loss, I have endeavoured to procure benefit from it, but in vain.

* After numerous and very extensive trials of Conium, unaccompanied by other medicines, I am unable to attribute to it the virtues for which it was extolled by Storck. Like Hyosciamus, it is an admirable soother, but I have never known it even diminish any description of organic disease.

The want of success renders it totally needless to recount these cases, but as no one would imagine how far the exhibition of the Antimonial Powder may be carried, without the occurrence of nausea or any other sensible effect,* I shall relate a few instances of very many, for the purpose of showing this extent.

Jan. 1819.—Elizabeth Bond, aged 38, had for twelve months laboured under convulsions, blindness, deafness, idiotism, and pain of the head. Leeches and blisters were applied abundantly to the head, and mercurial purgatives as freely taken. In May she was pretty well freed from all complaint, and ceased to be a patient at the hospital.

Antimonial Powder also was exhibited during the treatment, in the following manner:—

Feb. 27.—The dose had increased by additions of five grains twice a week to gr. xxx. b. d.

March 6.—P. A. gr. xlv. b. d.

March 11.—P.A. ℈ij ss. in conjunction with Pil.Hyd.gr.iij.b.d.

March 20.—P. A. gr. xl. t. d.

March 27.—P. A. gr. lxx. t. d.

April 3.—Tenesmus.—P. A. gr. lxxx. t. d. An opiate wash to be frequently applied to the anus.

April 8.—Tenesmus gone. Great flatulency. Nausea. Pergat.

April 17.—Nausea not increased. Bowels costive. P. A. gr. lxxxv. t. d. Salts and Senna occasionally.

* In one man who had long laboured under violent head-ache from a blow, it from the very beginning, and invariably, occasioned so copious a secretion of limpid urine, which exhausted the strength, that after recommencing its em-employment several times I was under the necessity of laying it aside altogether.

April 24.—Nausea not increased.
P. A. gr. xc. t. d.

May 1.—Vomiting. P. A. gr. lxxx. t. d.

Feb. 18, 1819.—Thomas Oliver, aged 45, has laboured some years under hemiplegia and pains of the opposite side. P. A. gr. v. Ext. Stramonii. gr. $\frac{1}{2}$. b. d.

Feb. 27.—P. A. gr. x. Ext. Stram. gr. $\frac{1}{2}$. b. d.

March 6.—Hemiplegia undiminished. Pain less.
P. A. gr. xv. t. d. Ext. Stramonii. gr. $\frac{2}{3}$. quaque nocte.

March 13.—P. A. gr. xxx. t. d. Ext. Stramonii, gr. j. quaque nocte.

March 18.—P. A. gr. xxx. t. d. for three days; then gr. xl. t. d. Contr. Ext. Stramonii.

March 27.—P. A. gr. xlv. t. d. The pain remains.
Contr. Ext. Stram.

April 3.—No better. P. A. gr. lxv. t. d. for three days; then gr. lxx. t. d.

April 10.—Nausea. Pergat.

April 17.—No nausea. Pain.
P. A. gr. lxxx. t. d. Ext. Stram. gr. ij. quaque nocte.

April 24.—No better: no sensible effect.
To begin the use of the Extract of Nux Vomica.*

* The Nux Vomica has been lately very much recommended in France for cases of Paralysis. A general remedy for this complaint is an absurdity, because, like most others of the nervous system, the disease may proceed from a great variety of causes. In the greater number of very recent cases, and in those of long standing which are accompanied by evident fulness of the head, its use is hasardous. I knew a short plethoric old man, who had been hemiplegic for a twelvemonth, become rather intoxicated by a moderate dose of it, and by repeating it two or three times bring on a second stroke of his disease. Many have complained so much of head-ache and stupor from its exhibition, while no

March 11, 1819.—Mary Saynes, aged 38, has laboured five months under hemiplegia of the right side.

P. A. gr. v. t. d. for three days; then gr. x.

20.—P. A. gr. xij. t. d. for three days; then gr. xv.

27.—P. A. gr. xx. t. d. for three days; then gr. xxx.

April 3.—Vertigo and cephalalgia.—

P. A. gr. xxxv. t. d. Hirudines capiti.

8.—Head relieved; paralysis lessened.

P. A. gr. xl. t. d.

17.—P. A. gr. xlv. t. d.

24.—P. A. gr. L. t. d. for three days; then gr. LV.

May 1.—The first effect of the medicine, is vomiting since the commencement of the last dose.

P. A. gr. L. t. d.

6.—Vomiting lessened, but has not ceased.

P. A. gr. xlv. t. d.

15.—Not even nausea. Pergat.

good effect was produced, that I have been obliged to suspend its use. It causes heat and heaviness of the head, giddiness, &c.; in fact all the effects of very strong beer. Its inadmissibility in many cases of paralysis is therefore apparent. When nothing has forbidden its exhibition, I have frequently used it without benefit. One hemiplegic old woman, whose disease was of six months standing, took it in vain above half a year. Still, however, I have sometimes found it serviceable. A few patients have recovered rapidly on commencing its employment, after long resorting fruitlessly to other means. The power which it possesses of stimulating the nerves of voluntary motion was very remarkable in an old woman who had lost the use of the left arm and leg for sixteen years. A course of it did her, as might be expected, no good, and not only occasioned a little tingling of the afflicted arm, but very often caused the fore-arm to be suddenly drawn up for a moment, although the extremity had never previously moved once the whole sixteen years.

The extract which I have employed is extremely good and manufactured by Mr. Battley. The dose has been at first half a grain, and has been afterwards cautiously increased a quarter of a grain every day or two. No one has borne more than seven grains for a dose, few more than four.

22.—P. A. gr. L. t. d.

29.—Pergat.

June 3.—Pain of head. Pergat. Hirudines capiti.

12.—Head relieved. P. A. gr. lx. t. d.

19.—P. A. gr. lxv. t. d. Paralysis scarcely, if at all, lessened. Pains in the direction of the nerves of the arm.

26.—No better. Nausea. As the Antimonial Powder had now been fairly tried, I resolved to put her under a course of Nux Vomica.

May 6, 1819.—Mary Warboys, aged 38, had pain about the left temple for five years, and got rid of it by Stramonium. Rather more than two months afterwards she was seized with slight hemiplegia and a strong epileptic fit. Three weeks ago,—four months since the fit, she had a second attack of epilepsy. She has not menstruated for four months.

Hir. vj. temporibus, altero quoque die. P. A. gr. iij. t. d.

11.—One violent fit—great pain of head—bowels relaxed. P. A. gr. vj. t. d. Contr. Hirudines.

14.—No fit, bowels in good order.

P. A. gr. xij. t. d. Hirud. xij.

28.—One strong paroxysm every day.

P. A. gr. xv. t. d. Contr. Hirud.

June 1.—Three strong paroxysms.

P. A. gr. xx. t. d. Contr. Hir.

4.—No paroxysm.

P. A. gr. xxx. t. d. Contr. Hir.

12.—Three paroxysms.

P. A. gr. L. t. d. Cuc. cr. occipiti ad lb. j.

18.—No paroxysm. P. A. gr. lxx. t. d.

25.—One paroxysm on the twenty-second. Some pain of head. Still amenorrhœa.

P. A. gr. lxxx. t. d.

July 3.—One paroxysm. P. A. gr. lxxxv. t. d.

10.—One paroxysm. No nausea hitherto. Bowels regular. P. A. gr. xc. t. d.

Was not seen afterwards.

Feb. 1, 1819.—Jane Hanscomb, aged 14, has often had nearly twelve epileptic fits in a day, these two years.

P. A. gr. v. t. d.

March 1.—The medicine has been regularly taken in the same dose. Has a paroxysm once or twice a week only.

P. A. gr. x. t. d. and the doses to be gradually increased up to gr. xxv. t. d.

April 8.—No paroxysm till last week, and now one daily. P. A. gr. xxx. and the dose to be increased five grains once a week, up to gr. xlv. t. d.

May 6.—One paroxysm daily. Pergat.

June 3.—Twelve paroxysms only since the last visit.

P. A. gr. l. t. d. and the dose to be increased five grains once a week, up to gr. lxv.

July 10.—Several paroxysms every day. Constant pain of head. No nausea or other sensible effect from the Antimony.

Cuc. cr. occipiti—ad lb. j. P. A. gr. lxx. t. d. and the dose to be increased five grains once a week, up to gr. lxxxv.

The girl got no better.

Dec. 1818.—Mary Ann Fay, aged 21 years, of the sanguineous temperament, blind from amaurosis, and operated upon for congenital cataract by the late Mr. Sanders, has complained some months of pain all over the head, a pulsation both there and throughout the system, and peculiar sensations, which she calls flowings, along different parts At first five grains of Antimonial Powder were ordered three times a day, and the dose was increased by five grains twice a week, till on the fourth of March it amounted to fifty.

March 4.—P. A. gr. lv. t. d. for three days; then gr. lx. b. d.

March 13.—P. A. gr. lxv. b. d.

March 20.—P. A. gr. lxx. t. d.

March 27.—P. A. gr. lxxv. t. d.

April 1.—P. A. gr. lxxx. t. d. for three days; then gr. lxxxv. t. d.

April 10.—The same quantity of P. A. to be continued, with the addition of Tr. Camph. Comp. f ʒiv. to each dose.

April. 17.—P. A. gr. xc. Tr. Camph. C. f ʒvj. t. d.

Still no effect from the Antimonial Powder on any of the functions, but the disease somewhat mitigated. Pergat.

April 24.—Nausea, and to day a slight vomiting, but the action of the bowels and skin unaffected. The disease still more mitigated.

The P. A. was now omitted, and the Opiate Tincture soon removed all the symptoms.

In this case the augmentation of dose was sometimes very large.

Aug. 26, 1819.—George Berring, aged 23. Ill 4 years. Rather short; extremely strong built; plethoric; head particularly large at the back part. Complains of vio-

lent pain running from the forehead through the head. Has had anaphrodisia for a twelvemonth, though he was formerly in the opposite extreme. V. S. cupping, blisters, &c. have been used in vain.

P. A. gr. v. t. d. for 3 days; then gr. x. t. d. for three days; and finally gr. xv. t. d.

Sept. 4. No better.

P. A. gr. xv. t. d. for 3 days; then gr. xx. t. d. Hirud. xij.

18.—No better: has had no medicine for 7 days.

P. A. gr. xxv. t. d. for 3 days; then gr. xxx. t. d.

25.—No better. Yesterday took once gr. xxx; once gr. xl; once gr. L: and this morning gr. lx.

P. A. gr. xl. t. d. for 3 days; then gr. L. t. d.

Oct. 2.—No better.

P. A. gr. lx. t. d. for 3 days; then gr. lxx. t. d.

9.—No better.

P. A. gr. xc. t. d. for 3 days; then gr. c. t. d.

16.—No better. For the first time complains of occasional nausea. P. A. gr. cx. t. d.

23.—Has taken the medicine but twice a day; was better at the beginning of the week, but is not at present: being a bricklayer, he works hard with his head down, and I fear drinks a great deal of porter.

P. A. gr. cxx. b. d.

30.—Much better. P. A. gr. cxv. t. d.

Nov. 6.—Worse again; sometimes feels a little nausea. I now lost sight of him.

There is as much reason to suppose that the relief experienced by this patient in the head arose from the good effects of the Prussic Acid on his stomach, and of

the purgative on his bowels, as from the antimonial preparation.

Nov. 6, 1819.—Robert Dye, aged 45. Ill a great length of time, and treated in vain by practitioners of all ranks. Complains of pains in the pit of the stomach, chest, and neck; a sensation of choking; vertigo and headache. The bowels are torpid.

P. A. gr. v. t. d. for 3 days; then gr. x. t. d. for 3 days; and finally gr. v. t. d.—Mist. Sennæ C. quotidie.

13.—Head a little better.

P. A. gr. xx. t. d. for 3 days; then gr. xxv. t. d. and finally gr. xxx.—Contr. M. S. C.

20.—Head a little better.

Pergat. Acidi Hydrocyanici ♏ i. t. d. for 3 days; then ♏ ij. t. d.—Contr. Pulv. Antim.

27.—Head a little better.

P. Ant. gr. xxxv. t. d. for 3 days; then gr. xl. t. d.—Ac. Hydroc. ♏ iij. t. d. for 3 days; then ♏ iv. t. d.

Dec. 4.—Head a little better; stomach and throat rather better.

P. A. gr. xl. t. d. for 3 days; then gr. l. t. d.—A. H. ♏ v. t. d.

11.—Rather better in all respects; bowels just now torpid; urine increased.

P. A. gr. lv. t. d. for 3 days; then gr. lx. t. d.—A. H. ♏ v ss. t. d. for 3 days; then ♏ vj. t. d.

18.—P. A. gr. lxx. t. d.—Ac. Hyd. ♏ vij. t. d.

24.—Better in both head and stomach.

Contr. P. A.—Ac. Hyd. ♏ viij. t. d.

The man felt no nausea, and after this was so much better as to take nothing but some Ext. Coloc. C.

Feb. 3, 1820.—John Reardon. Labours under asthma.

P. A. gr. v. t. d. for 3 days; then gr. x. t. d. for 3 days; and finally gr. xv. t. d. Ext. Hyosciami gr. x. quaque nocte.

Feb. 12.—No better.

P. A. gr. xx. t. d. for 3 days; then gr. xxv. t. d.

19.—No better. Nausea.

P. A. gr. xxx. t. d. for 3 days; then gr. xxxv. t. d.

26.—No nausea.

P. A. gr. xl. t. d. for 3 days; then gr. xlv. t. d.

March 4.—P. A. gr. l. t. d. for 3 days; then gr. lv. t. d

11.—Worse, but no nausea.

P. A. gr. lx. t. d. for 3 days; then gr. lxv. t. d.

18.—P. A. gr. lxx. t. d. for 3 days; then gr. lxxv. t. d.

25.—No nausea; not better.

P. A. gr. lxxx. t. d. for 3 days; then gr. lxxxv. t. d.

I saw him no more.

I have heard in conversation that very large doses of Antimonial Powder are borne where the head is affected; but the magnitude of the quantities borne in the preceding cases probably far surpasses the doses that are meant. There has, besides, appeared no difference in the quantity borne, whether the head was affected or not:—In the most trifling cutaneous diseases, and therefore no doubt in perfect health, the dose may be raised as high as when there is congestion within the head.*

* In Dr. Rollo's *Cases of the Diabetes Mellitus*, p. 299 sq. a case of Diabetes is related by Dr. George Pearson in which immense doses of it were borne, in some measure from the existence of an unusual torpidity of the alimentary canal, because a tea-spoonful of ipecacuanha would not produce vomiting nor less than three ounces of salts purging.

"At first, thirty grains of pulvis antimonialis, or James's powder, were given as a vomit, but they produced neither vomiting nor sickness. Forty grains of this medicine were next given in an evening; he slept as well as usual, and

That the Antimonial Powder employed was good cannot be doubted, because, from the cases being exceedingly numerous, it was procured from a variety of places; and for complete satisfaction a quantity was carefully made according to the letter of the London Pharmacopœia expressly for the patients who were taking these doses of it in St. Thomas's Hospital. The statement of my failures with Antimonial Powder may have this utility, that it may guide others in making similar attempts: and should the James's Powder prove efficacious in the same diseases, or not be borne in such large quantities, we shall have sufficient reason to disbelieve, as many do, its identity with the Pulvis Antimonialis.

no sensible effects ensued till the following morning, when both vomiting and purging came on, by which the stomach, which had been disordered, was much relieved.

"Thirty grains of pulvis antimonialis were administered some time after the former doses; and next forty grains, at four different times, without any sensible effects from any of these doses; excepting once vomiting; but that not without the aid of warm water, containing common salt. He took forty grains of this medicine one evening at eight o'clock, a second similar dose at nine o'clock, and a third similar dose at ten o'clock, without any perceivable operation till one in the morning, when he grew sick, and afterwards vomited once only.

"At another time, forty grains of this antimonial preparation were given, and in one and a half hour farther, sixty grains, upon which he vomited a little. And on another occasion the patient took in three hours, one evening, six doses of the antimonial powder, of sixty grains each, and soon after the last dose he vomited about a quart of liquid, his stomach grew easy, and he could have eat at supper as usual; he passed a quiet night, and discharged during it even less urine than usual; the next morning ate at breakfast with a good appetite; and during the day purged a good deal without griping. One evening he also took six doses of antimonial powder, of thirty grains each, in six hours successively, without any sensible effect till next morning, when he was a little sick, but vomited only once, although he drank warm water; and ate at breakfast with his usual good appetite."

Every one will be ready to relate instances of nausea and vomiting from small doses of the Antimonial Powder. I believe this principally occurs when feverishness and foulness of tongue exist, or when it is combined with Calomel. The preceding cases were chronic and without pyrexia or foulness of tongue and stomach. The tendency of all antimonial preparations to induce sickness appears greatly augmented by the addition of Calomel, and therefore, whenever a full and speedy mercurial effect is desired, nothing can be more injudicious than to unite it with antimony: I have seen patients lost while taking a combination of this kind, who would probably have recovered if given the same quantity of Calomel alone.

The facts which I have presented in regard to the doses of Antimonial Powder may be more interesting at the present moment from the ascription of peculiar powers, independent of its nauseating property, to Tartarized Antimony by Dr. Balfour of Edinburgh,* whose observations are partly confirmed by Mr. Jeffreys.†

* *Illustrations of the Power of Tartar Emetic in the Cure of Fever, Inflammation, Asthma, and in preventing Consumption and Apoplexy.*

† *Cases in Surgery*, &c. 1820.

SECT. II.

THREE CASES OF DIABETES TREATED WITH OPIUM.

The term Diabetes should perhaps be restricted to the secretion of saccharine urine. For an excessive formation of urine (far beyond the quantity of drink) is not only a common accompaniment of the generation of flatus that takes place in hysteria and spasmodic asthma and often idiopathically, but will occur from various causes; sometimes continue, if unopposed, for a length of time without inducing the peculiar constitutional effects of Diabetes, or proving dangerous; and sometimes cease spontaneously, or easily give way to proper treatment. In true saccharine Diabetes, again, the patient may be oppressed by all the constitutional symptoms of the disease, and make urine most abundant in sugar, and yet not make a larger quantity than other persons. One of the patients whose cases are about to be detailed, although labouring under a most confirmed Diabetes, makes but two or three pints a day,—considerably less than the quantity of his drink. Some affirm that saccharine Diabetes frequently begins as merely an increased secretion of natural or limpid urine. This cannot easily be ascertained because the disease creeps on so imperceptibly that when the nature of the indisposition is discovered, the urine is in general extremely sweet. When, however, the proportion of sugar is being diminished by remedies, the quantity of urine does not usually, I believe, continue large, but both diminish

together.* On giving Dr. Prout some specimens of urine so copiously secreted that I suspected saccharine Diabetes, he recognised a peculiarity first discovered by him a few months before,—an excess of urea, without sugar. The patients all readily recovered their health. Whether the excess of urea would have terminated in the production of sugar,† is not known; but if so,—if the urea occasionally becomes excessive and the urine too abundant before sugar is produced, the assertion is certainly correct that Diabetes mellitus may be previously Diabetes insipidus. But I beg leave to signify by the appellation Diabetes, in the few following pages, the saccharine affection.

In regard to the pathology of Diabetes, it may be remarked that the blood of one of the patients was examined by Dr. Prout and found to differ in no respect from that of the most healthy person. The expired air of the same man and of one of the others contained much less carbon than usual: but they were both taking Opium, (one nux vomica also) and as porter, tea, alcohol, &c. have been discovered by Drs. Prout and Fyfe‡ to diminish the evolution of carbon in the lungs, the Opium might be the cause of the circumstance.§ The loss of so much matter from the

* Sometimes the quantity of urine will decrease, but the proportion of sugar remain the same.

† Dr. Prout has discovered a remarkable relation in the composition of urea and sugar. Sugar contains no azote, as urea does; they each contain the same quantity of hydrogen; but sugar has twice the quantity of carbon and of oxygen that is found in urea. "Diabetes," he observes, "may in fact be considered to consist in a depraved secretion of urea." *Med. Chir. Trans.* vol. viii. p. 540 sq.

‡ Thompson's *Annals of Philosophy*. 1814. *Dissertatio Inauguralis*. Edinburgi. 1814.

§ When the expired air of the second man, however, was once examined, he had taken no Opium for four days: but the quantity of carbon was not then so small as when he was taking it.

system sufficiently explains the hunger, the feeling of emptiness and sinking in the stomach, the emaciation, debility, anaphrodisia, coldness of the legs, pains both of them and of the loins, the depression of spirits, &c. without attributing the disease to either the stomach or the kidneys exclusively. The excessive escape of fluid, or, where this does not take place, the feverishness, equally explains the thirst and the dryness of the skin. More organs may be in fault than one, and perhaps some that are not at present suspected, but I have never seen any reason to think the stomach more deranged after the disease was established than it must necessarily be in such an exhausting disorder: the blood never contains sugar and is often quite healthy. The action of the kidneys is necessarily deranged from the beginning; this is a fact, and till more facts than we possess at present are obtained, perhaps the only reasons to ascribe the disease to any other organ is that some cases are said to have begun with indigestion, costiveness, &c. before the urine was disordered, and that the state of the stomach powerfully influences at all times the secretion of urine.

Dr. Cullen confesses that in all the instances which he himself had seen of Diabetes, and in several others of which he was informed, no cure of it was ever made in Scotland, though many cases of it occurred, and in most of them the remedies recommended by authors were diligently employed.* We have the knowledge at present, however, of three powerful means of controlling the disease, all extraordinary, and totally without resemblance;—animal diet—bleeding—opium. As these do not probably interfere with each other, it is perhaps best to have recourse to them conjointly; but

* *First lines.* MDXIII.

the circumstance of my cases occurring in out-patients at St. Thomas's Hospital, extremely destitute, rendered a confinement to animal diet impossible, and in truth the poor creatures could procure little animal food at all, but lived chiefly upon bread, milk and water, and tea. Bleeding was employed in the first case for some time, but was at length forbidden by various unfortunate occurrences which debilitated him so seriously as to make it hasardous and induce me to give a fair trial to Opium. In the two other men the debility was such as to make me prefer the same plan; the one could scarcely crawl, and the other really often fell down in walking to the hospital. I know that bleeding is said frequently to give strength in the disease, and I credit the assertion, but there appeared a danger of such temporary weakness as would disable them from getting afterwards to their homes.

Aetius, I believe, vaguely mentions the use of Opium in Diabetes. Sydenham was in the habit of prescribing the Theriaca Andromachi among other medicines, in fact, of treating Diabetes exactly as he did leucorrhœa, with the exception of bleeding and purging: the quantity of Opium, however, was small; we have no information concerning the effects, and it seems to have been jumbled among others without being thought of peculiar virtue. Dr. Darwin is the first who gives us any precise account of the use of Opium in this disease,* as far as I know; though very possibly he may have been preceded by others. Three grains of Opium, taken every four hours, reduced the quantity of urine in a diabetic case from eighteen down to eight pints a day, and even occasioned sweating.

* *Zoonomia*, p. 318.

Dr. Pelham Warren details two cases in which Opium was of decided advantage.* In one the urine was reduced from twelve or fifteen pints a day to three, and in the other from eight to four or five; and in both deprived of its sweetness. The effect of the Opium was very marked, from the urine resuming its sweetness in each case on the omission or diminution of the doses. The urine of one man remained subsequently of proper quantity and taste for a week with small doses of Opium, and he then left the hospital: that of the other continued healthy in both respects till he died a short time afterwards of a pulmonary consumption which had at length made rapid progress. Twelve grains in the day and night were required for the one, twenty-four for the other.

Mr. Money of Northampton relates a case in which the quantity of urine was reduced in less than three weeks from twenty-five pints to seven in the day and night, and the health greatly improved.† The quantity of Opium was gradually increased to twenty-four grains in the twenty-four hours. The termination of this case is unknown from the patient having soon left the hospital.

Dr. Ferriar states having been very successful in the treatment of Diabetes with lime water, uva ursi, cinchona, and Opium.‡

The comparative rarity of this disease renders almost every case valuable: of 12,950 patients who have

* *Trans. of the Royal College of Physicians, London.* vol. 4. 1812.

† *Med. Chir. Trans.* vol. 5. 1814.

‡ *Medical Histories and Reflexions.*

been under my care, four only have laboured under Diabetes. But the following cases are particularly interesting from the extremely small number of our facts respecting the influence of Opium upon it, and from more circumstances having been ascertained than were in any of those which have been published. In one case the Opium had not only a full but an extraordinary trial. For the observation of the specific gravity and other points relating to the urine I am indebted to Dr. Prout.

On April 2, 1818, John Beck, aged 51, a baker, afflicted with Diabetes rather more than four years, having first observed the disease at Christmas, became my patient at St. Thomas's Hospital. He attributed it to extreme grief and anxiety, and to wheeling a very heavy truck. He had been under the care of several practitioners, been two or three times bled to a small amount, taken alum, &c. and had blisters applied to the loins, without benefit. He at one time made sixteen or twenty pints of urine a day, and the disease appears to have fluctuated extremely without any evident cause.* When admitted he was making eight or ten pints of very sweet urine per day; was feeble, emaciated, low-spirited, very hungry and thirsty, cold, especially in the legs and feet, and felt little or no support from the food he took; had been the subject of anaphrodisia for a twelvemonth; complained of great pain in the loins; and his ankles were œde-

* The account given by patients, of their previous state and treatment, is so frequently inaccurate, that I do not wish much weight to be attached to the relation of any thing which occurred before my own observations commenced.

matous. The bowels were generally costive. The specific gravity of the urine was 1044.8.

He was at first ordered Pulv. Ipecac. C. b. d. beginning with gr. x. and augmenting the dose to ℈ij.

His urine certainly decreased and became less sweet, and his skin acquired softness and moisture, but, as he improved only very little, bleeding was directed, and on the 25th of June he lost 25 oz., the next Saturday 30, the next 30, and the next 25, without any ill or decided good effect.

A purging now took place, and he took Pulv. Kino C. ʒss. with two and afterwards three grains of Opium, t. d.

The urine had latterly decreased to five or six pints, and become bitter; his thirst was less, he was stronger, and his legs scarcely swelled. The diarrhœa had ceased. The medicines were continued till he appeared to gain no farther ground, and Sept. 5, he was again bled, to 20 oz. On the 12th, the urine was at five pints per diem, and sweeter than latterly, and he was therefore bled to 25 oz. He fainted from the loss of blood, and was afterwards in all respects worse. His coldness was so great that bark, camphor mixture, &c. were given him, and the quantity of urine then increased to seven pints. The œdema also increased, and, on August 26, reached to his hips.

While taking the bark, &c. he was attacked with jaundice, the œdema still extending to his hips. The jaundice ceased spontaneously, and he was ordered Cal. gr. iv. Opii gr. ij. b. d., with Tr. Ferri Ammoniati gtt. L. t. d. The dose of Opium was increased to gr. vij.; of the Cal. to gr. iv.; and of the Tr. to gtt. c. The œdema entirely disappeared; the urine decreased to

iv ss. lbs. and he became in most points better. His mouth was slightly affected.

The Calomel was omitted: the Opium was taken in doses of gr. viij. b. d.; and the Tr. Ferri Ammoniati of gtt. cxxx. t. d. The specific gravity of the urine was now 1041.8.

On Jan. 16, the urine was about 5 lbs.; and of 1030.8 specific gravity. He had very little thirst or craving for food, and was much stronger. The dose of Opium was to be gr. ix. b.d.

On Jan. 30, he was almost free from every symptom: the urine contained no sugar,—was quite of its natural composition, and its specific gravity had descended positively to 1014.8.

One of the persons engaged in dispensing medicines now made a mistake, which nearly killed him at the time, instantly brought back all his diabetic symptoms, and so shook his frame that he has never since made much progress. The Opium was being taken in the form of the Pil. Saponis cum Opio of the Pharmacopœia, and he consequently had nine five-grain pills for a dose. Instead of this, he received Pil. Hydrargyri, of which he took gr. XLV twice a day for four days. This threw him into a severe ptyalism and purging, and, from 1014.8, the specific gravity of the urine suddenly mounted to 1055.5. Whether the quantity was increased could not be ascertained because of the purging. The Opium was instantly ordered in doses of gr. ix. b. d. and given soon afterwards, for the convenience of swallowing, in pills made of the pure article.

The subsequent report will be conveniently presented in a tabular form.—

		Opium taken since last Visit.	Specific Gravity of Urine to day.*	Quantity of Urine per Day since last Visit, &c.	Various Particulars.
Feb.	13	gr. ix. bis die.	1045. 1	5 or 6lbs. Very little urea.	
	20	gr. xi. —	1042. 3	Urea increased; sugar diminished.	
	28	gr. xii. —	1027. 7	Abundant urea; little sugar.	
March	4	gr. xiii. —	1047. 1	Little urea; much sugar.	Great pain of loins and legs, and coldness of latter.
	13	gr. xiv. —	1051. 9	- - - -	Pain of loins very severe. Emp. Picis C. Lumbis.
	20	gr. xvi. —	1045. 4	Very little urea.	Much less thirst and pain: more cheerful and strong.
	27	gr. xvii. —	1047. 7	Urea increased.	No pain nor thirst; craving less; sweats.
April	10	gr. xviii. —	1036. 9	Little urea. No uric acid.† Quantity and sweetness less.	Always sleepy.
	24	gr. xviii ss.—	1045. 7		
	29	gr. iv. —	1042. 3	Urea very deficient; sugar abundant.	Much worse in all respects: pain intense. iv grs. only of Opium taken by him in mistake instead of xx.
May	8	℈i. —	1040.	4½ lbs. Urea even more abundant than natural. Urinous smell.	Much better: feels strong and well—can walk 10 miles a day.
	15	gr. xxi. —	1041. 6	Abundant urea; uric acid.	Better.
	20	gr. xxii. —	1046. 8		
	27	gr. xxiii. —	1047. 4		
June	5	gr. xxv. —	1043. 7		
	12	gr. xxvii. —	1045. 8		
	19	——	1048. 6	- - - -	Feels ill. Pain of back, and coldness of legs.
	24	gr. xxviii.—	1046. 6	- - - -	Much better.
July	3	——	1046. 4		
	8	——	1046.		

* The specific gravity of urine depends upon its solid contents—chiefly the salts. These are very deficient in diabetic urine, and the specific gravity of it is therefore proportional to the quantity of saccharine matter. The specific gravity of healthy urine ranges, I believe, between 1010 and 1018.

† Uric acid was frequently observed both before and after this time, although its absence in diabetic urine has been generally believed since the analyses of Nicholas and Gueudeville.—*Ann. de Chimie*, t. xliv. p. 73.

		Opium taken since last Visit.	Specific Gravity of Urine to day.	Quantity of Urine per Day since last Visit, &c.	Various Particulars.
July	24	——	1044. 1	6 lbs.—high coloured.	
	31	gr. xxiii. t. d.	1047. 2	- - - -	Sweats profusely.
Aug.	7	gr. xxiv. t. d. for 3 days; then gr. xxvi. t. d.	1046.	- - - -	Gets worse.
	14	——	1043. 7		
*	21	——	1040. 4	- - - -	Feels better.
	28	——	1048. 6	- - - -	Seized with a violent cholera on the 22d. The medicines were twice omitted, but the whole quantity of Opium was afterwards finished in the week.
Sept.	4	——	1048. 6	4 or 5 lbs.—sweet.	Better; but, as usual, always sleepy.
	11	——	1040. 6		
	25	——	1040. 4	- - - -	Thirsty; feels very cold in the legs.
Oct.	2	——	1048. 7	No uric acid. - -	Weaker; more œdema; ephidrosis.
	16	——		More urine. - -	Weaker; thirsty; more pain.
	23	gr. xxx. t. d. for 7 days; then gr. xxxiii. t. d.	1046. 2		
	30	gr. xxxvi. —	1046. 8	- - - -	A purging for 3 days at the beginning of the week: which had the ordinary effect of making his legs very cold and painful.
Nov.	6	gr. xxxix. —	1048. 4	- - - -	Worse.
	13	gr. xl. —	1045. 1		
†	20	gr. xlii. —	1050. 9	- - - -	Appears sinking.

* At this time he began taking also the Prussic Acid t. d. He continued it till the 16th October, when the dose was gtt. viij.

† At this time he began the extract of Nux Vomica in addition; from ½ gr. t. d. he reached gr. ix. on the 12th of December, when he left it off, and began the Nitrate of Ammonia, which he took in as large quantities as possible for two months; then Uva Ursi all March; and afterwards Uva Ursi & Kino. On the 6th of April he discontinued them, and from the severity of pain in his ankles commenced the use of Stramonium: from gr. ½ t. d. he reached gr. ij. and ceased to take it at the end of May.

		Opium taken since last Visit.	Specific Gravity of Urine to day.	Quantity of Urine per Day since last Visit, &c.	Various Particulars.
Dec.	11	gr. xlv. t. d.	1050.	- - - - -	Expired air at 3 p. m. to day, contained 3.25 * per cent. of Carbonic Acid Gas. Thirst and craving increased.
	18	——	1041.6	- - - - -	Expired air, at same hour, affords but 2.5 per cent. of Carbonic Acid Gas.
	24	℥ii. —	1050.7		
	30	——	1050.		
1820:					
Jan.	1	——			
	†29	—— b. d.	1043.7	- - - -	Health improved.
Feb.	12	gr. xxx. t. d.	1046.6		
	19	gr. xxxiii. —	1043.3		
	26	gr. xxxvi. —	1048.6		
March	11	——	1047.		
April	1	——	1046.5		
	15	——	1045.7		
	22	——	1045.7		
May	13	——	1047.		
June	3	gr. xxx. —	1050.		
July	1	——	1043.4	Abundance of uric acid.	

The power of Opium over Diabetes is strikingly exemplified in this case. He was relieved by the small quantity which he at first took in the Pulv. Ipec. C. The bleeding did nothing for him. On resuming Opium, both in a simple state and in the P. Kino C., he again found benefit. A continuance of Opium entirely removed his disease, when the unfortunate mistake was made with Mercury. From this time, although he at first improved, his amendment has been inconsiderable; his urine has never been free from sugar, nor his strength,

* Allen and Pepys fix the quantity of carbon in expired air at about 8 per cent, but this estimate is by many thought too high.

† The Opium was now given him in powder instead of pills, and produced so much more effect, that the doses were necessarily taken but twice a day; he afterwards took a smaller dose t. d.; and the powder was at length made into pills with treacle.

warmth, &c. properly returned. The second mistake, committed on April 24, 1819, in which his dose was gr. iv. instead of gr. xx. also threw him seriously back, and put the power of Opium in a very strong light.

He has now remained for many months in nearly the same state; the Opium does not lessen the complaint, but certainly has kept it stationary. His health is not at all worse, but indisputably better, than when he first came under my care two years and a quarter ago. This is saying very much, for his constitutional symptoms were intense at his admission. He then, besides, made 8 or 10 lbs. of water per diem: now he makes but 6.

I am at present gradually lessening the quantity of Opium, in the hope of keeping him stationary by a smaller dose. The bowels have been often rather sluggish, but as often regular, and not unfrequently relaxed.

On Jan. 20, 1820, Edward Cox, aged 24, became a patient at St. Thomas's Hospital. He had been diabetic three months, without assignable cause. Was short, and apparently a poor creature both in body and mind at all times. He was making twenty pints of sweet urine per day: was weak and emaciated, and always hungry, thirsty, and cold, especially in the legs and feet. As he had pneumonic symptoms, I began with bleeding to the amount of ℥ x.

The specific gravity of the urine before bleeding, was 1037.1.; and five minutes afterwards 1040.2. It became turbid on evaporation, but not from containing albumen, and it yielded a large quantity of very pure

white sugar. Traces of urea were evident; and when evaporated it afforded a milky smell. A course of Opium was fixed upon, but, being in a workhouse, he could not always get out, and therefore attended irregularly.

		Opium taken since last Visit.	Specific Gravity of Urine to day.	Quantity of Urine per Day since last Visit, &c.	Various Particulars.
1820:					
Jan.	22	gr. i. and then gr. ij. ter die.	1045. 8		
	29	gr. iij.	1035. 8.	Only 16 lbs.	No change in health. Sleepy.
Feb.	12	None for four days.	1041.	- - -	Air expired gave 3.1 per cent. of Carbonic acid gas at 2 o'clock, p.m.
	19	gr. ij. t. d.	1036. 3	- - -	D°, 2.9 per cent.* Less thirst.
March	4	None for seven days.	1041. 1	20 lbs.	Worse. Pneumonic symptoms.
	11	gr. ij. ss. and iij. ss. t. d. was bled to ℥ xij.	1038.	10 lbs.	No thirst. Aspect much improved.
	18	gr. v. t. d.	1045. 5	10 lbs.	Thirst. Cough severe.
	25	gr. v. —	1050.	6 or 8 lbs.	Cough and thirst better. Weaker. Bowels open two or three times a day.
April	1	——	1049. 1	- - -	Cough nearly gone. Sleeps, and is regular in bowels as usual.
	15	gr. vij. for 7 days; after which none.	1038. 7	20 lbs.	
	22	gr. ix. t. d.	1040. 1	6 lbs.	In all respects better.
May	6	—— No medicine afterwards for 7 days.	——	10 lbs.	
	13	gr. x. t. d.	1040.	6 lbs.	
	20	——	1040. 4	6 lbs.	Has had a diarrhœa.
June	3	— for 7 days; afterwards none for 7 days.	1034. 9	- - -	Thirst much less.
	10	gr. x. t. d.	1040. 5	4 or 5 lbs.	—— Bowels regular daily.

* Whether accidental or not, it is perhaps worth notice that, in both Beck and Cox, when the proportion of carbon was greater, the specific gravity of the urine was also greater.

The effect of Opium was equally striking here. The quantity was at first in a few days lessened several pints, and, not only on three occasions of the omission of the Opium, instantly increased, but upon the resumption of the medicine as regularly lessened again. When he first applied to me he was making twenty pints: at the last visit but four or five. I do not know what has become of him.

Notwithstanding this, the specific gravity of the urine continued high. No uric acid ever appeared in it, nor was it materially changed in any of its qualities. That this would not have been the case if his attendance had been regular and he had ultimately persevered, is a fair presumption.

On May 11, 1820, William Cochlan, aged 55, came under my care at St. Thomas's Hospital. He had laboured under Diabetes seven months. Was extremely weak and emaciated; the legs, and especially the ankles, were cold and benumbed, and often tingled. He was very thirsty, but not hungry. At the moment he had a diarrhœa, to which he was liable every now and then. He at first made 14 lbs. of sweet urine per day; but they were reduced to 6 lbs. in Guy's Hospital, by persisting in the use of animal diet and Pulv. Ipec. C. for thirteen weeks. The medicine alone has been continued during the last seven weeks,—since he left the Hospital, and he has now made but 3 or 4 lbs. a day for the last fortnight.

The specific gravity of the urine is 1037.6.

Opii gr. ij. t. d. per triduum; dein gr. iij. t. d.

20.—Feels better. Pergat.

27.—So much better that he has done a little work for the first time since his illness laid him up. Thirst less. Urine only 2 or 3lbs.—much less than his drink.

Opii gr. iv. t. d.

June 3.—Suffers extremely from pain and tightness of the stomach after eating. The quantity of urine the same; its specific gravity 1036.5.

Pergat.—Ac. Hydrocyanici ♏ ij. t. d.

10.—Stomach rather better: in other respects the same: very giddy. Specific gravity of urine 1037.6.

Opii gr. iij. t. d. Ac. Hydroc. ♏ iij. t. d.

24.—Has been absent for a week through a violent attack of purging, which has not yet subsided.

Dec. Hæmotoxyli.

July 1.—A most violent cough, which he maintains is his only complaint. Coldness not only of legs and feet, but even of his thighs. Specific gravity of urine 1041.4. Uric acid in it.

Opii gr. ij. b. d. Ac. Hydroc. ♏ij. t. d. per trid.; dein ♏iij. t. d.

8.—Sleepy. Cough much better; urine, as usual, about 3 pints; ankles cold; bowels open once or twice a day. Specific gravity of urine 1040.3. Uric acid in it.*

Opii gr. iij. t. d. Ac. Hydroc. ♏iv. t. d.

I should not have related Cochlan's case had he not come under my care at the time that Beck and Cox were my patients. Yet the effect of Opium has already been observable in him. His great improvement while in Guy's Hospital is at least as referrible to the animal

* Cochlan's urine, as well as that of both Beck and Cox, has always contained urea

diet as to Opium, but his stationary state, after he relinquished the diet, was probably owing to the continuance of the Pulv. Ipecac. C. On my giving him larger quantities of Opium than were contained in his doses of that compound, the quantity of his urine per day diminished a pint, and he felt so much better as actually to go to work at his trade of a cooper. The diarrhœa not only reduced him, but occasioned his absence from the hospital, and when he was seen afterwards, it was not on a regular day, and he was ordered merely a decoction of logwood. The Opium shall now have a full trial. Its resumption has already caused the appearance of uric acid.

Although the great powers of animal diet and of bleeding over diabetes is incontestable, some cases have occurred in which they were of little or no use, and still more in which their benefit was but temporary. Opium may therefore rank at least equally high with them, and it has this advantage over the former that it may be easily employed without exciting any disgust on the part of the patient, and over the latter that it is not a frightful remedy. I am, indeed, acquainted with no case, besides Beck's, in which it can be yet said to have ultimately failed in effecting a cure after a fair trial, and him it had liberated from every symptom before his body was suddenly shattered by mercury. Neither am I aware of any case which has not been more or less benefited by its administration whether ample or inconsiderable. Its property of not only lessening the excessive secretion of urine, but of lessening the specific gravity,—checking the production of sugar, of augmenting the quantity of urea, and

positively of causing the appearance of uric acid, is certain. The utility of the Pulv. Ipecac. C. seems to arise entirely from it, for whatever good that produces is invariably continued by exhibiting Opium alone. As to sweating, Opium generally occasions it in diabetes, and as actively as the P. Ip. C.

The effect of bleeding, animal diet, and Opium, in conjunction, deserves to be examined.

P. S. Since the 51st page was printed, a case of Tetanus has occurred within my own knowledge, in which no signs of inflammation were visible in the spinal marrow, nor indeed any where else. Although, therefore, this part has been recently as well as formerly discovered in several instances inflamed, the proximate cause of Tetanus cannot be inflammation of the spinal marrow, and the frequent success of treating the disease with large quantities of narcotics and stimulants, to the total exclusion of evacuants, and the small success of treating the disease with bleeding, &c. are no longer inexplicable.

The importance of looking for increased determination of blood to particular organs in a great variety of diseases was first pointed out by Dr. Parry above thirty years ago,* and with few are lancets, cupping-glasses, and leeches, in greater requisition than with myself.

* *Memoirs of the Medical Society of London.* vol. iii. "On the effects of compression of the arteries in various diseases, and particularly in those of the head, with hints towards a new mode of treating nervous disorders.

But of late I think we have in some instances run rather into excess in attributing diseases to excessive determination or congestion, and to treating them by evacuants. Even where there is excessive determination, &c. we are perhaps too apt to overlook the cause of this, which is frequently some derangement of the vital powers that is not produced by, but really produces, the alteration of circulation, and though generally best treated by removing the morbid state of circulation, on account of the intimate connection between them, often continues in spite of our efforts, keeps up the morbid state of circulation, and is cured only by remedies that directly affect the vital powers.

Inflammation of the spinal marrow will possibly occasion Tetanus, as that of the brain does delirium; but as insanity may exist from mere disorder of cerebral function with only such a change of circulation as eludes observation, so it appears that Tetanus may with respect to the spinal marrow. Although the circulation is no doubt always affected in both diseases, inflammation and organic changes may not be apparent till the disease has lasted long or become intense. In the case alluded to, the spinal marrow might have eventually become inflamed, for the man died on the third day, not through the disease,* but from cold water being poured over him.†

* In the case of Hydrophobia, which shewed no actual inflammation of the spinal marrow, the child did not die of the disease, but was cut off early by the means employed.

† Cold affusion has often cured Tetanus, and often occasioned, as in this case, instant death. It can scarcely be imagined useful, any more than narcotics, &c. when inflammation is established, and must probably be hasardous, exactly as in Typhus, when the disease has been intense for any time and has

This dissection makes me hope for more advantage from the early exhibition of the Prussic Acid than from any other medicine, because, on the one hand, there is in Tetanus violent pain at the scrobiculus cordis, and the system of voluntary motion is the seat of the disease, while the mental powers are unimpaired: and, on the other, the acid peculiarly lessens spasmodic pain at the pit of the stomach, and lays the powers of voluntary motion prostrate, without acting as a soporific.

exhausted the powers of the system. Even when employed before the powers are exhausted or inflammation established, I should apprehend with Dr. Currie (*Mem. of the Med. Society of Lond.* vol. iii.) that the safe moment to dash on the water is during an exacerbation of the spasms, according to the pathological principles formerly mentioned.

THE END.

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